

Niagara Gorge Corridor

***Robert Moses Parkway Removal
Main Street to Findlay Drive
Niagara Falls, NY***

Design Report/ Environmental Assessment

Appendix L - Hazardous Waste/ Contaminated Materials

- L.1 Preliminary Screening Report for the
Hazardous Waste/Contaminated
Materials Assessment**
- L.2 GPS Enabled Overland Gamma Radiation
Survey**

PIN 5761.90

July 2016

In cooperation with:

**New York State Department of Transportation
New York Power Authority
USA Niagara Development Corporation
The City of Niagara Falls, NY**

**L.1 Preliminary Screening Report for the
Hazardous Waste/Contaminated Materials
Assessment**

PRELIMINARY SCREENING REPORT
FOR THE
HAZARDOUS WASTE/CONTAMINATED MATERIALS ASSESSMENT
OF
NIAGARA RIVER GORGE – ROBERT MOSES PARKWAY NORTH
CORRIDOR PROJECT
FROM NIAGARA STREET TO FINDLAY DRIVE
CITY OF NIAGARA FALLS, NIAGARA COUNTY

MAY 2015

PREPARED FOR:
PARSONS TRANSPORTATION GROUP OF NEW YORK
40 LA RIVIERE DRIVE, SUITE 350
BUFFALO, NEW YORK 14202

FOR SUBMISSION TO:
NEW YORK STATE OFFICE OF PARKS, RECREATION &
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PRELIMINARY SCREENING REPORT

FOR THE

HAZARDOUS WASTE/CONTAMINATED MATERIALS ASSESSMENT

OF

NIAGARA RIVER GORGE – ROBERT MOSES PARKWAY NORTH SEGMENT
CORRIDOR PROJECT
FROM NIAGARA STREET TO FINDLAY DRIVE
CITY OF NIAGARA FALLS, NIAGARA COUNTY

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Attachment C	Site Photographs
Attachment D	<i>Oak Ridge Laboratory – Results of Radiological Measurements Taken in The Niagara Falls, New York Area (NF002)</i> and other Background Information

1.0 INTRODUCTION

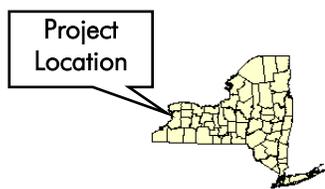
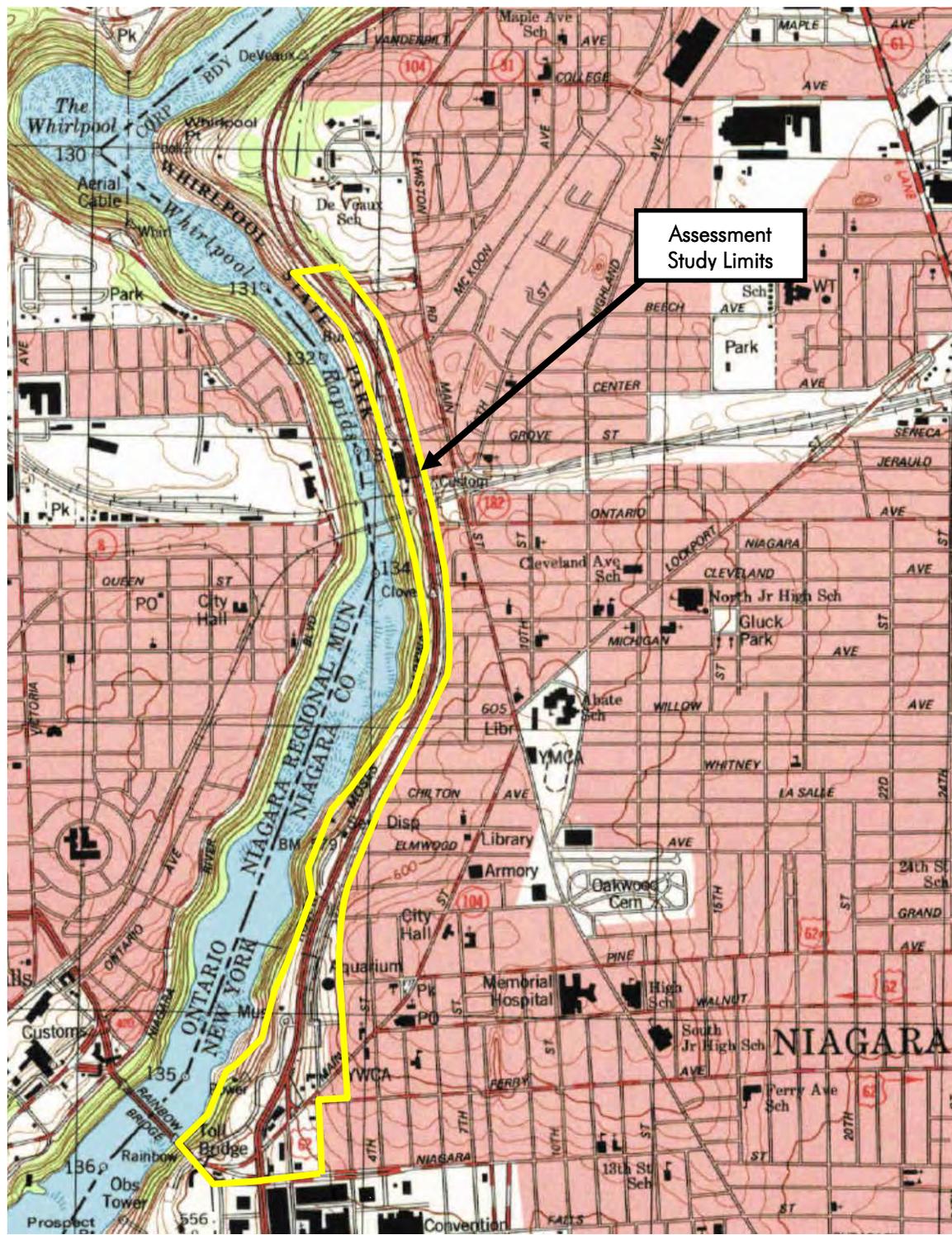
Watts Architecture & Engineering (Watts) was retained by Parsons Transportation Group of New York (Parsons) to perform a preliminary screening for the Hazardous Waste/Contaminated Materials (HW/CM) Assessment for the Niagara River Gorge – Robert Moses Parkway North Segment Corridor Project, from Niagara Street to Findlay Drive, City of Niagara Falls, Niagara County, New York. The project is being completed by Parsons with the New York State Office of Parks, Recreation, and Historic Preservation as the project sponsor and owner.

1.1 Project Description

The proposed project will involve removing portions of the Robert Moses Parkway North Segment; re-establishing a new roadway along Whirlpool Street and a variety of trails within Robert Moses Park; and providing new access connections to and from Whirlpool Street. The project will also reconstruct portions of First, Second and Third Streets and add/improve circulation and parking at various locations. The primary limits reviewed for this HW/CM assessment report are shown in **Figure 1** and coincide with the areas of anticipated ground disturbance.

1.2 Purpose

The purpose of the preliminary screening phase of the HW/CM Assessment is to identify potential areas of contamination that may be excavated during construction. The second phase of the HW/CM Assessment, if warranted, is used for soil (or other material) characterization to determine disposal requirements for excavated soil, to identify environmental concerns that could affect the public or worker safety, and to assist with the preparation of plans, specifications, and cost estimates in support of the work.



SOURCE:
USGS 7.5 x 15' QUADRANGLE
"Niagara Falls, NY,"
1995

Figure 1 - Project Location Map

Robert Moses Parkway - North
Niagara Street to Findlay Drive
City of Niagara Falls,
Niagara County, New York



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Buffalo, New York

Not to Scale

April 2015

2.0 SCOPE AND METHODOLOGY

This preliminary screening conforms to the procedures recommended in NYSDOT's 2010 The Environmental Manual (TEM) (including updates), Section 4.4.20, Contaminated Materials and Hazardous Substances. The screening consists of collecting information through a record search to investigate previous activities and site uses in the corridor, a review of government databases and records, a field inspection, and interviews with government personnel and any other identified knowledgeable individuals. A complete list of sources referenced in this report is found in **Attachment A**.

2.1 Investigation of Previous Activities and Site Use

A records search is conducted to determine past or current land uses on and in the immediate vicinity of the project corridor that may be of environmental concern. The following sources were used to evaluate potential environmental concerns on the project corridor.

2.1.1 USGS Topographic Maps

Watts reviewed the 1901, 1944, 1965, 1980, and 1995 Niagara Falls USGS 7.5-minute topographical maps. According to the USGS maps, the roadway corridor is at approximately 580 feet above sea level. The topographical maps were obtained from Environmental Data Resources, Inc. (EDR). A copy of the maps can be found in **Attachment B**.

2.1.2 Historic Land Use Maps

Watts reviewed the 1875 Atlas of Niagara and Orleans Counties, NY; the 1893 Atlas of the Vicinities of the Cities of Niagara Falls, North Tonawanda, and Buffalo, NY; the 1908 New Century Atlas of Niagara County, NY; and the 1938 Niagara County, NY Atlas. These historic atlases were reviewed online.

2.1.3 Sanborn Fire Insurance Maps

The 1897, 1914, 1950, and 1969 Sanborn Fire Insurance Maps were obtained from EDR. Copies of these maps are found in **Attachment B**.

2.1.4 City Directories

Watts reviewed the following City of Niagara Falls, Niagara County, New York, City Directories: 1964, 1968, 1972, 1977, 1982, 1987, 1992, 1995, 1999, 2003, 2008, and 2013. The city directories were obtained from EDR. Copies of these directories are found in **Attachment B**.

2.1.5 Aerial Photographs

The 1938, 1963, 1970, 1978, 1981, 1985, 1995, 2006, 2008, 2009, and 2011 aerial photographs were obtained from EDR for the project corridor. Copies of these photographs are found in **Attachment B**.

2.2 Review of Government Records and Databases

The government records search included a review of federal, state, and local government databases of known or suspected inactive hazardous waste sites; petroleum and chemical bulk storage tank sites; reported spills, including leaking underground storage tanks; and hazardous waste generation sites.

EDR was employed to perform a United States Environmental Protection Agency (USEPA) and New York State Department of Environmental Conservation (NYSDEC) database search for the proposed project corridor. The environmental reports can be found in **Attachment B**.

The federal and state databases searched and the specified radii from the roadway corridor are summarized below:

- National Priorities List (NPL) – 1.0 mile
- National Priorities List Delisted (NPLD) – 1.0 mile
- Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) – 0.50 mile
- No Further Remedial Action Planned Sites (CERC-NFRAP) – 0.50 mile
- Corrective Action Sites (RCRA COR) – 1.0 mile
- Resource Conservation and Recovery Act (RCRA) Treatment, Storage, and Disposal Sites (RCRA TSD) – 0.50 mile
- Resource Conservation and Recovery Act (RCRA) Large and Small Quantity Generators (RCRA GEN) – 0.25 mile
- Federal Institutional and Engineering Controls (Fed IC/EC) – 0.50 mile
- Emergency Response Notification System (ERNS) – 0.25 mile
- NYSDEC Registry of Inactive Hazardous Waste Disposal Sites (SHWS) – 1.0 mile
- State/Tribal Solid Waste Landfills (SWL) – 0.50 mile
- State/Tribal Leaking Underground Storage Tanks (LUST) – 0.50 mile
- State/Tribal Storage Tanks (UST/AST) – 0.25 mile
- State/Tribal Institutional & Engineering Controls (IC/EC) – 0.50 mile
- State/Tribal Voluntary Cleanup Program (VCP) – 0.50 mile
- State/Tribal Brownfield – 0.50 mile
- Federal Brownfield – 0.50 mile
- Hazardous Materials Information Reporting System (HMIRS) – 0.25 mile
- NYSDEC Spills (SPILLS & HIST SPILLS) – 0.25 mile

- No Longer Regulated (RCRA NLR) – 0.25 mile
- Toxic Chemical Inventory Release System (TRIS) – target property
- Toxic Substances Control Act (TSCA) – target property
- FIFRA/TSCA Tracking Systems (FTTS) – target property
- Integrated Compliance Information System (ICIS) – target property
- PCB Activity Database System (PADS) – target property
- Material Licensing Tracking System (MLTS) – target property
- Radiation Information Database (RADINFO) – target property
- Facility Index System (FINDS) – target property
- RCRA Administrative Action Tracking System (RAATS) – target property
- Risk Management Plan (RMP) – target property
- Hazardous Substance Waste Disposal (HSWDS) – 0.25 mile
- Hazardous Waste Manifest (Manifest) – 0.25 mile
- Drycleaners – 0.25 mile
- Manufactured Gas Plants – 1.0 mile
- National Pollution Discharge Elimination System (NPDES) – 0.25 mile
- Tribal Lands – 1.00 mile
- Potentially Responsible Party (PRP) – target property
- Aerometric Information Retrieval System (AIRS) – target property

In addition to the above-listed information, Watts requested that existing Sanborn Maps relevant to the subject corridor and immediately adjoining properties be included in the information package. Watts also reviewed in-house data including NYSDEC, Division of Environmental Remediation, Freedom of Information Law (FOIL) CD-ROM dated April 1, 2003 and the NYSDEC Environmental Remediation Databases on their website.

Additional site information was also obtained through data searches of local agency files. These files were reviewed to determine past environmental problems, engineering studies, utility locations, and property ownership/boundaries. Watts made the following contacts:

- New York State Department of Environmental Conservation Website for hazardous materials information;
- City of Niagara Falls Building Department for land use and ownership; and
- Niagara County Department of Health for hazardous materials information.

2.3 Field Inspection

The field inspection is a walkover of the project corridor to observe potential locations of contamination that may be environmental concerns and affect the design or construction of a project. Potential environmental concerns may be identified by: stained or discolored soil or building foundations; distressed, dead, or absence of vegetation; air emissions or odors; discolored or sheened surface water or ground

water discharges; evidence of previous fill placement or waste disposal; and evidence of previous fires. Additional concerns may be identified by: evidence of former or existing underground storage tanks; aboveground storage tanks; monitoring wells; pipes or pipelines; 55-gallon (208 L) drums or other evidence of bulk chemical storage and disposal; old pump islands; possible PCB storage, including transformers and former transformer pads; railroad tracks; sumps or septic systems; and pits, lagoons, or other surface impoundments.

A field walkover of the project corridor was conducted on April 1st, 2015. Properties of potential environmental concern were noted, and photographs are found in **Attachment C**.

2.4 Interviews

A variety of employees representing a number of agencies, departments and government offices were contacted as valuable sources of information regarding past and present land uses, potential contamination problems, and other relevant information regarding environmental concerns that may affect the project corridor. A list of contacts and sources reviewed is found in **Attachment A**.

3.0 FINDINGS

This section includes the general findings for the length of the project corridor (subsection 3.1) and the specific findings for each researched property. A property is included in this section if it showed the potential to be an environmental concern during one of the methods of investigation listed in Section 2.0. Available information from all sources is listed for each property followed by an evaluation of impacts or potential impacts on the project corridor.

3.1 Specific Properties Considered to be Potential Environmental Concerns

The following properties are considered to be potential environmental concerns with respect to their location on or adjacent to the project corridor. The location of each property of environmental concern is shown on **Figure 2** through **Figure 4** by designated site letter. Photographs of the sites of environmental concern are included in **Attachment C**.

3.1.1 Site A – Niagara Parkway – Robert Moses Parkway (Project Corridor)

This property is considered the “subject property” under review and is located within Robert Moses Parkway from Niagara Street to Findlay Drive. Refer to Photos #1 through 9 in **Attachment C**.

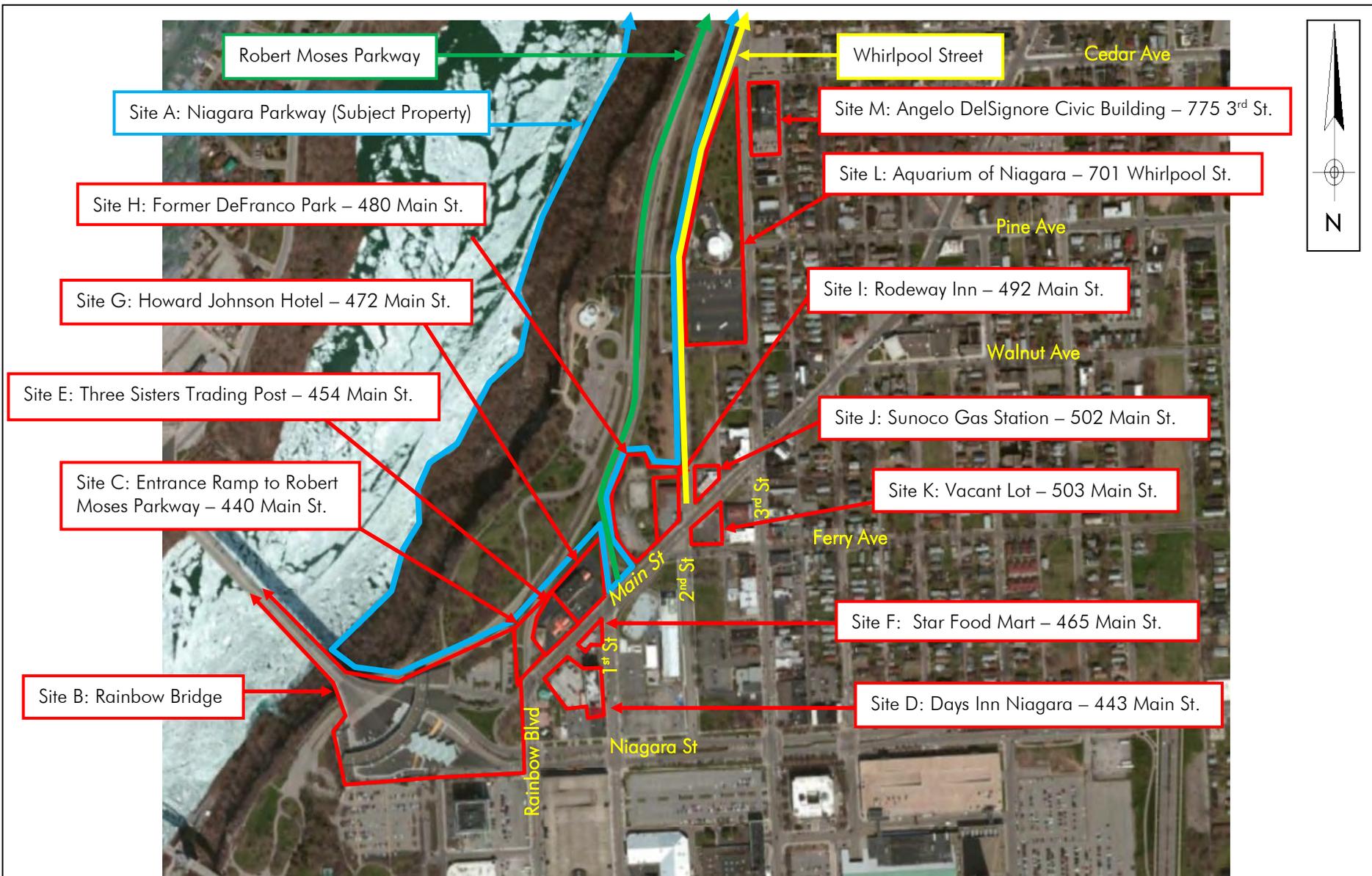
Site Inspection

This property currently consists of a two-lane roadway, multi-use trail and adjacent park land between the Niagara River and Whirlpool Street. The portion of the site of concern extends from Prospect Park north to the Whirlpool State Park. The site includes the Niagara Gorge Discovery Center and a former sewage treatment facility which was located along the Niagara Escarpment at Ashland Avenue.

Sanborn Maps

On the 1897 and 1914 Sanborn Maps there are many large manufacturing facilities located along the Niagara River, north of the Rainbow Bridge. These include a cutlery manufacturer, paper mills, an aluminum manufacturer, flour mills, and a hydraulic power company. In addition, there is a hydraulic canal that runs northwest from the upper Niagara River (at John B. Daly Blvd.) to a basin that runs along the east side of the manufacturing facilities. The NYC Railroad is depicted running north/south on the west side of Whirlpool Street in the vicinity of the current location of the Robert Moses Parkway. An electric railroad runs along the Niagara Escarpment from Walnut Street to the Whirlpool Bridge. A car house for this railroad is located along the Niagara Escarpment at the end of Spruce Avenue.

A portion of this site north of the Rainbow Bridge is depicted on the 1950 Sanborn Map as “to be park”. The manufacturing facilities along the river are no longer present except for the hydroelectric plant and the aluminum company located



Source: ESRI - 2015

Figure 2 - Sites of Potential Environmental Concern

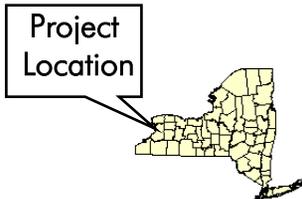
Robert Moses Parkway North Corridor Project
 From Niagara Street to Findlay Drive
 City of Niagara Falls, Niagara County

Not to Scale

April 2015



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Source: ESRI - 2015

Project Location



Figure 3 - Sites of Potential Environmental Concern

Robert Moses Parkway North Corridor Project
From Niagara Street to Findlay Drive
City of Niagara Falls, Niagara County

Not to Scale

April 2015



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Site A: Niagara Parkway (Subject Property)

Site U: Whirlpool Regional Maintenance Center – 2630 Whirlpool St.

Site T: Whirlpool Bridge – 2250 Whirlpool St.

Site W: Former Grand Manor Inc. – 2600 Main St.

Site V: Former Unifrax Corp. – 2351 Whirlpool

Site S: Former US Customs House – 2243-2245 Whirlpool St.

Site R: Vacant Lot – 2201 Whirlpool St.

Site Q: Henry E. Wrobel Towers – 800 Niagara Ave.

Source: ESRI - 2015

Figure 4 - Sites of Potential Environmental Concern

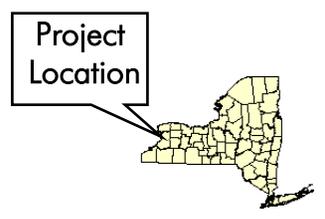
Robert Moses Parkway North Corridor Project
From Niagara Street to Findlay Drive
City of Niagara Falls, Niagara County

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between Walnut Street and Pine Avenue. The hydraulic canal and basin are still present. The mapping does not show the area west of Whirlpool Street between Spruce Avenue and Linwood Avenue except for a sewage disposal plant which is located along the Niagara Escarpment at Ashland Avenue. Residential properties are depicted along the west side of Whirlpool Street on the northern portion of this site, north of Bellevue Avenue.

The 1969 Sanborn Map shows the area similar to today's configuration except for the road configuration around the Rainbow Bridge. The manufacturing facilities, hydroelectric plant and the hydraulic canal are no longer present. The area along the river is depicted as a park including an observatory. The mapping does not show the area west of Whirlpool Street between Spruce Avenue and Linwood Avenue except for the sewage disposal plant which continues to be located along the Niagara Escarpment at Ashland Avenue.

Historic Maps

On the 1893 and 1908 atlases there are many large buildings located along the Niagara Escarpment, north of the Rainbow Bridge, including manufacturing facilities, mills, and a hydraulic power company. In addition, there is a hydraulic canal that runs northwest from the upper Niagara River to a basin that runs along the east side of the manufacturing facilities. The NYC Railroad is depicted running north/south on the west side of Whirlpool Street in approximately the same location as the Robert Moses Parkway. On the 1908 atlas, an electric railroad is located along the Niagara Escarpment from Spruce Avenue to the Whirlpool Bridge. A car house for this railroad is located along the Niagara Escarpment at Spruce Avenue.

Aerial Photographs

On the 1938 aerial photograph there are many large buildings located along the Niagara River, north of the Rainbow Bridge. Due to the scale of the photographs it is not possible to determine the nature of the businesses. In addition, there is a hydraulic canal that runs northwest from the upper Niagara River to a basin that runs along the east side of the buildings. A railroad runs north/south on the west side of Whirlpool Street in approximately the same location as the Robert Moses Parkway. There is a large building at the end of Spruce Avenue at the top of the edge of the Niagara Escarpment and another at the end of Ashland Avenue at the river's edge.

On the 1963 photo, the hydraulic canal has been filled in and all the large buildings along the Niagara Escarpment are gone. The area north of the Rainbow Bridge appears to be a park. The large building at the end of Spruce Avenue is no longer present. There are now two smaller buildings at the end of Ashland Avenue, one at the top of the Niagara Escarpment and one at the river's edge.

The 1978 and 1985 photographs show this site as similar to the current configuration except that there are more roads in the park area north of the Rainbow Bridge. In addition, the large building at the waters edge at the end of Spruce Avenue has been replaced with a smaller building.

The 1995, 2006, 2008, 2009, and 2011 photos show this site as similar to the current configuration.

CERCLIS No Further Remedial Action Planned Sites (CERC-NFRAP)

One (1) CERC-NFRAP record for this site is listed as PASNY – Robert Moses Parkway (Also identified as Robert Moses Parkway Landfill). The site was assessed in 1984 and it was determined that the site did not qualify for the National Priority List in 1992. No further remedial action was required.

RCRA No Longer Regulated (RCRA NLR)

Four (4) RCRA NLR records were listed for this site:

- NYS Parks & Recreation – Schoellkopf Museum: Prospect Point – No violations
- Schoellkopf Museum – Prospect Point Entrance Robert Moses – No violations
- NYSDOT BIN 1039539 – Robert Moses Parkway Viaduct over Canadian Pacific Railroad – No violations
- NYSDOT BIN 1068210 – Robert Moses Parkway Pedestrian Bridge – No violations

These sites were identified as sites that no longer generates, transports, treats, stores or disposes of hazardous waste.

NYSDEC Registry of Inactive Hazardous Waste Disposal Sites (SHWS)

Two (2) SHWS records were identified for this site:

- Hydraulic Canal – Between Buffalo Avenue and 2nd Street – Following the collapse of the Schoellkopf Power Generating Station in 1956, the hydraulic canal was filled in by the City of Niagara Falls using municipal refuse, demolition debris and other materials. Industrial wastes were reported to have been disposed of there, although the type and quantity of these wastes are not known. The site was assessed and the results did not indicate the presence of any significant contamination. No further action was required.
- Robert Moses Parkway – According to this record, large quantities of fill material from the Niagara Power Project were deposited over the existing Niagara River bed for several hundred feet into the Niagara River to construct the parkway. The exact location of this site is not known; however, the portion of the parkway within the subject corridor appears to have been constructed along former railroad lines.

NYSDEC Spill Report Database

Four (4) spill records were identified for this site:

- NF Treatment Plant – Niagara Park Sewer – Spill #8605589 – On November 26, 1986 the Niagara Falls Treatment Plant was being bypassed when a spill occurred. The spill was forwarded to the NYSDEC Water Division. This spill was subsequently closed and met NYSDEC cleanup standards.
- Niagara Gorge - Diesel – Robert Moses Parkway – Spill #0375505 – On March 7, 2004 a diesel leak was observed from a portable pump on a closed section of Robert Moses Parkway. This spill was cleaned up, closed and met NYSDEC cleanup standards.
- Schoellkopf Power Station #3 – East Bank of Niagara River, 1600 feet from the Rainbow Bridge – Spill #1215731 – On February 20, 2013 soil testing indicated contamination. The site was investigated and no spill was found. The contamination appeared to be due to urban fill. The spill was closed but did not meet NYSDEC cleanup standards.
- Niagara Falls WWTP – Rainbow Bridge – Spill #8807043 – On November 23, 1988 a black plume was observed in the Niagara River below the Niagara Falls WWTP outfall. The site was investigated and no plume was identified. This spill was closed and met NYSDEC cleanup standards.

HW Manifest

Three (3) HW Manifest records were listed for this site:

- NYS Parks & Recreation – Schoellkopf Museum: Prospect Point
- NYSDOT BIN 1039539 – Robert Moses Parkway Viaduct over Canadian Pacific Railroad
- Schoellkopf Museum – Prospect Point Entrance Robert Moses

These sites have records of hazardous waste manifest shipments to or from the site.

Conclusion

Despite redevelopment, the past use of portions of the corridor for manufacturing, railroad transportation, and as part of the hydraulic canal, indicates the potential to encounter soil and/or groundwater contamination and urban fill in the subsurface.

3.1.2 Site B – Rainbow Bridge

This property is located at the foot of Niagara Street at the Niagara River. Refer to Photos #10 and 11 in **Attachment C**.

Site Inspection

This site consists of the international bridge; supporting structures (i.e. bridge inspection booths, offices, etc.); a small park area along Whirlpool Street; and a parking lot.

Sanborn Maps

The Rainbow Bridge is depicted on this site on the 1950 and 1969 Sanborn Maps, however, the road configuration leading to the bridge is different than today. On the 1914 map, a portion of this site along the Niagara Escarpment, just north of the bridge, is depicted as the Niagara Falls Gas and Electric Company, a manufactured gas plant with several large gas holders.

Historic Maps

A bridge to Canada is depicted on this site on both the 1893 and 1908 atlases. A gas works plant is depicted, north of the bridge, on this site on both the 1893 and 1908 atlases. In addition, there are buildings located along the north side of Niagara Street (now part of the entrance to the bridge) on both the 1893 and 1908 atlases.

Aerial Photographs

The Rainbow Bridge is not depicted on the 1938 aerial photo, as it was constructed in 1940. However, there are large buildings located along the river on this site. Due to the scale of the photographs it is not possible to determine the nature of the business. The Rainbow Bridge is depicted on the 1963, 1978, 1985, 1995, 2006, and 2008 photos. The road configuration to the bridge and the customs house change slightly over the years but are present on all of these photos.

NYSDEC Registry of Inactive Hazardous Waste Disposal Sites (SHWS)

One (1) SHWS record for this site is listed as Niagara Falls Former MGP – Niagara Falls State Park (Prospect Park). A former Manufactured Gas Plant was located on the Niagara Escarpment above the Niagara River at this location.

NYSDEC Spill Report Database

Five (5) spill records were identified for this site:

- Rainbow Bridge – Niagara Street & Rainbow Street – Spill #0502407 – On May 29, 2005 white powder was found on counterfeit money by customs officer. This spill was closed and met NYSDEC cleanup standards.
- Sewer Odor at Toll Plaza – Rainbow Bridge – Spill #9713288 – On January 16, 1998 odors were noted coming from the manholes. The site was investigated and no spill was found. This spill was closed and met NYSDEC cleanup standards.

- Bus Garage – Rainbow Bridge – Spill #9514320 – On September 25, 1995 NYSDEC received sampling results from a tank removal. Results were slightly above guidance levels. The spill was closed but did not meet NYSDEC cleanup standards.
- Rainbow Bridge – Niagara River – Main Street Rainbow Bridge – Spill #9203792 – On June 9, 1992 a white material was found in the Niagara River by the Rainbow Bridge. The site was inspected and no spill was found. This spill was closed and met NYSDEC cleanup standards.
- Rainbow Bridge – 1 Niagara Street – Spill #0108958 – On December 9, 2001 a fuel tank on a bus was found to be leaking as it went through customs. Approximately 20 gallons of diesel spilled into the sewer system. This spill was cleaned up, closed and met NYSDEC cleanup standards.

Historic Auto Database

One (1) Historic Auto record was identified for this site:

- Conrail Car Repair Shop – 16 Niagara Street

This site was identified as a potential gas station, filling station, and/or service station.

Manufactured Gas Plant (MGP)

One (1) MGP record was identified for this site:

- Niagara Falls Gas Light Co. – Niagara Street

This site was identified as a former manufactured gas plant.

Conclusion

Despite redevelopment, the past use of portions of the property as a manufactured gas plant and auto repair shop indicates the potential for encountering soil and/or groundwater contamination from petroleum products, solvents, purifier waste, coal tar, and other waste materials in the subsurface across portions of this site.

3.1.3 Site C – Entrance Ramp to Robert Moses Parkway – 440 Main St.

This property is located on the north side of Main Street between Rainbow Boulevard and 2nd Street. Refer to Photo #12 in **Attachment C**.

Site Inspection

This site is currently an entrance ramp to the Robert Moses Parkway northbound from Main Street.

Sanborn Maps

This site is depicted on the 1897 and 1914 Sanborn Maps as a silverware manufacturer and part of an unnamed road. On the 1950 map, the site is depicted as a gas station and part of Main Street Extension. The gas station is still present on the 1969 map and the road is now depicted as an entrance ramp to the Robert Moses Parkway. The configuration of the entrance ramp in 1969 appears to be slightly different than its current configuration.

Historic Maps

This site is depicted on the 1908 atlas as part of a manufacturing facility.

Aerial Photographs

This site is depicted on the 1938 aerial photograph as a vacant lot. On the 1963, 1978, 1985 photos the site is depicted as an entrance ramp to the Robert Moses Parkway and a small building east of the ramp. The ramp is depicted on a different angle than the current configuration. The 1995, 2006, 2008, 2009, and 2011 photos depict the site as it appears today.

RCRA No Longer Regulated

One (1) RCRA record for this site is listed as NYSDOT – Main Street & Rainbow Boulevard. This site was identified as a site that no longer generates, transports, treats, stores or disposes of hazardous waste. No violations were identified for this property.

Leaking Storage Tanks Database

One (1) LTank record was identified for this site:

- NYSDOT – 434-440 Main Street – Spill #9106635 – On September 19, 1991 contaminated soil was found associated with a leaking underground storage tank. The tank and contaminated soil were removed. The spill was closed and met NYSDEC cleanup standards.

NYSDEC Petroleum Bulk Storage Database

One (1) PBS record for this site is listed as Mobil – 434-440 Main Street. Two (2) 550-gallon USTs (installed 6/1971, closed-removed 5/1991); two (2) 6,000-gallon gas USTs (installed 6/1971, closed-removed 5/1991); and one (1) 8,000-gallon gas UST (installed 6/1971, closed-removed 5/1991) were listed on the state registry for this site.

NYSDEC Spill Report Database

One spill record was identified for this site:

- Vacant Lot (Mobil S/S) – Main Street – Spill #9012654 – On March 5, 1991 NYSDEC received a call regarding the removal of an underground storage

tank. No contamination was found. This spill was closed and met NYSDEC cleanup standards.

Conclusion

Despite redevelopment, the past use of this property for silverware manufacturing and as a gas station with several underground storage tanks indicates the potential for encountering soil and/or groundwater contamination from petroleum products or possibly other historical contaminants in the subsurface across portions of the site.

3.1.4 Site D – Days Inn Niagara – 443 Main St.

This property is located on the south side of Main Street between Rainbow Boulevard and 1st Street. Refer to Photo #13 in **Attachment C**.

Site Inspection

This site is currently a hotel.

Sanborn Maps

A portion of this site is depicted on the 1950 Sanborn Maps as an auto repair shop (447 Main Street). The site is depicted as a hotel on the 1969 map.

Aerial Photographs

On the 1938 and 1963 aerial photographs this site is depicted as part of a city block with several buildings along both Main Street and Rainbow Boulevard. Due to the scale of the photographs it is not possible to determine the nature of the businesses. A large building on Rainbow Boulevard with a parking lot located on Main Street is depicted on the 1978, 1995, 2006, 2008, 2009, and 2011 photos.

Conclusion

The past use of this site as an auto repair shop indicates a possibility of soil and/or groundwater contamination from petroleum products and other automotive chemical products and cleaners in the subsurface.

3.1.5 Site E – Three Sisters Trading Post – 454 Main St.

This property is located on the north side of Main Street between Rainbow Boulevard and 1st Street. Refer to Photo #14 in **Attachment C**.

Site Inspection

This site is currently a souvenir shop and helicopter tour company.

Sanborn Maps

This site is depicted on the 1897 and 1914 Sanborn Maps as being used for manufacturing of silverware; metal hooks and eyes; and counter check books. On the 1950 and 1969 maps the site is depicted as a restaurant. On the 1969 map there is a helicopter tour company on the site, west of the restaurant.

Historic Maps

This site is depicted on the 1893 and 1908 atlases as part of a manufacturing facility.

NYSDEC Petroleum Bulk Storage Database

One (1) PBS record for this site is listed as Rainbow Air Inc. – 454 Main Street. One (1) 6,000-gallon UST (installed 7/1993, in service) was listed on the state registry for this site.

Facility Index System (FINDS)

One (1) FINDS record was found for this site is listed as Rainbow Air Inc. – 454 Main Street. This record identifies properties that have been found in one or more federal database.

HW Manifest

A HW Manifest record for this site is listed as NYSDOT – 454 Main Street. This site has records of hazardous waste manifest shipments to or from the site.

Conclusion

The past use of the property as a manufacturing facility and for petroleum storage indicates the possibility for encountering soil and/or groundwater contamination from petroleum products, chemical or solvents in the subsurface across portions of this site.

3.1.6 Site F – Star Food Mart – 465 Main St.

This property is located on the southwest corner of Main Street and 1st Street. Refer to Photo #15 in **Attachment C**.

Site Inspection

This site is currently a gas station and convenient store.

Sanborn Maps

This site is depicted on the 1950 and 1969 Sanborn Maps as a gas station. Four tanks are depicted on the site on the 1950 map.

Leaking Storage Tanks Database

Two (2) LTank records were identified for this site:

- Star Food Mart: 465 Main Street – Spill #9503830 – On April 29, 1995 a tank was overfilled. The spill was cleaned up, closed and met NYSDEC standards.
- Star Food Mart: 465 Main Street – Spill #9714287 – On March 25, 1998 contamination was found during a tank removal. The contaminated soil and tanks were removed. The spill was closed and met NYSDEC standards.

NYSDEC Petroleum Bulk Storage Database

One (1) PBS record for this site is listed as Star Food Mart – 465 Main Street. Two (2) 6,000-gallon gas USTs (install date unknown, closed-removed 3/1998); one (1) 3,000-gallon diesel UST (install date unknown, closed-removed 3/1998); one (1) 10,000-gallon gas UST (installed 4/1998, in service); one (1) 5,000-gallon gas UST (installed 4/1998, in service); and one (1) 8,000-gallon diesel UST (installed 4/1998, in service) were listed on the state registry for this site.

NYSDEC Spill Report Database

Two (2) spill records were identified for this site:

- Star Food Mart – 465 Main Street – Spill #1006633 – On September 19, 2010 NYSDEC received a report of a large diesel spill. The site was investigated and no spill was found. The spill was closed and met NYSDEC cleanup standards.
- Star Food Mart – 465 Main Street – Spill #1102513 – On June 5, 2011 approximately 30-40 gallons of gasoline spilled onto the concrete pad during a fuel delivery. The spill was cleaned up, closed and met NYSDEC cleanup standards.

Facility Index System (FINDS)

One (1) FINDS record was found for this site is listed as Star Food Mart – 465 Main Street. This record identifies properties that have been found in one or more federal database.

Conclusion

The current and past use of this property as gas station, the presence of underground storage tanks, and documented evidence of historical contamination indicate the potential for encountering soil and/or groundwater contamination from petroleum products in the subsurface across portions of this site.

3.1.7 Site G – Howard Johnson Hotel – 472 Main St.

This property is located on the north side of Main Street between Rainbow Boulevard and the entrance ramp to Robert Moses Parkway northbound. Refer to Photo #16 in **Attachment C**.

Site Inspection

This site is currently a hotel.

Sanborn Maps

This site is depicted on the 1897 Sanborn Map as part of a silver company, a printing company, and a residential dwelling. A hydraulic canal is present on the northeastern portion of the site. On the 1914 map, the site is part of a silverware and cutlery manufacturer and the hydraulic canal is still present. The 1950 map shows the site as an open lot. The hydraulic canal continues to be present passing through the northeastern portion of the site. On the 1969 map, the site is depicted as a hotel.

Historic Maps

This site is depicted on the 1893 and 1908 atlases as a manufacturing facility and part of the hydraulic canal.

Aerial Photographs

This site is depicted on the 1938 aerial photo as a vacant lot and part of the hydraulic canal. On the 1963 photo, most of the site continues to be a vacant lot but the hydraulic canal appears to have been filled in. A large building surrounded by parking is depicted on the site on the 1978, 1995, 2006, 2008, 2009, and 2011 photographs.

Conclusion

The extensive use of the property for manufacturing at a time when there were no environmental regulations and as backfilled portions of the hydraulic canal indicates the potential to encounter soil and/or groundwater contamination from petroleum products, chemicals and solvents and undocumented urban fill in the subsurface across this site.

3.1.8 Site H – Former DeFranco Park – 480 Main St.

This property is located on the north side of Main Street between Whirlpool Street and Rainbow Boulevard. Refer to Photo #17 in **Attachment C**.

Site Inspection

This site is currently a lot with one small brick building being utilized as a snow storage area. It was previously a City of Niagara Falls park.

Sanborn Maps

This site is depicted on the 1897 and 1914 Sanborn Maps as a wood and coal yard, three tracks on the NYC & HR Railroad line and part of the hydraulic canal. On the 1950 map, the site is depicted as a parking area, a forebay portion of the hydraulic canal and four tracks of the NYC & HR Railroad line. The site is

depicted on the 1969 map as open land with one small building along Main Street.

Historic Maps

This site is depicted on the 1893 atlas as a coal yard, railroad lines (3 tracks) and part of a hydraulic canal basin. On the 1908 atlas the site is depicted as a coal company, hydraulic power company, railroad lines (4 tracks) and part of a hydraulic canal basin.

Aerial Photographs

Portions of this site are depicted on the 1938 aerial photo as part of a railroad line and hydraulic canal. In addition, there is a large building on the northern portion of this site. On the 1963 photo, the site is a vacant lot and the canal has been filled in. The site is depicted as a park with parking lot, basketball courts and two small buildings on the 1978, 1985, and 1995 photos. On the 2006 and 2008 aerial photos, the site is still depicted as a park but only one building remains. The parking lot and basketball courts are still evident on the site on the 2009 and 2011 photos, but the site does not appear to be maintained as a park any longer.

Conclusion

Despite redevelopment, the past use of the property as an active rail line and as part of the hydraulic canal indicates the potential for encountering soil and/or groundwater contamination from rail line operations or undocumented urban fill in the subsurface.

3.1.9 Site I – Rodeway Inn – 492 Main St.

This property is located on the northwest corner of Main Street and Whirlpool Street. Refer to Photo #18 in **Attachment C**.

Site Inspection

This site is currently a hotel and convenient store/ souvenir shop.

Sanborn Maps

This site is depicted on the 1897 and 1914 Sanborn Maps as storefronts and residential dwellings along Main Street and an auto repair shop at 522 2nd Street. On the 1950 map, the storefronts and residential dwellings are still present along Main Street. There is now a gas station and auto repair shop at 518-520 2nd Street with two tanks. A small building at the corner of Main Street and 2nd Street surrounded by parking lots is depicted on the site on the 1969 map.

Aerial Photographs

This site is depicted on the 1938 and 1963 aerial photographs as several small buildings. On the 1978, 1995, 2006, 2008, 2009, and 2011 photos, a large building is present at the rear of the site and a small building is present along

Main Street. Due to the scale of the photographs it is not possible to determine the nature of the businesses.

City Directories

The following businesses were identified on this site in the city directories:

<u>Address</u>	<u>Use</u>	<u>Years</u>
518 2 nd St.	Niagara Vulcanizing Wks.	1964

Conclusion

The past use this property as a gas station, an auto repair shop, miscellaneous commercial use, and the presence of underground storage tanks indicate the potential for encountering soil and/or groundwater contamination from petroleum products, chemical or solvents in the subsurface across portions of this site.

3.1.10 Site J – Sunoco Gas Station – 502 Main St.

This property is located on the northeast corner of Main Street and Whirlpool Street. Refer to Photo #19 in **Attachment C**.

Site Inspection

This site is currently a gas station.

Sanborn Maps

This site is depicted on the 1897, 1914, and 1950 Sanborn Maps as residential dwellings along Main Street. On the 1969 map, the site is depicted as a gas station.

Leaking Storage Tanks Database

One (1) LTank record was identified for this site:

- USA Gasoline Corporation: 502 Main Street – Spill #0102748 – On May 10, 2001 tanks failed their tank test. The tanks and lines were tested and gaskets were found to be losing pressure but not product. Groundwater was sampled and minor levels of contamination were found but it was thought to be from tanks previously on the site (removed in 1991). The spill was closed but did not meet NYSDEC standards.

NYSDEC Petroleum Bulk Storage Database

One (1) PBS record for this site is listed as Riddhi, Inc. – 502 Main Street. One (1) 3,000-gallon gas UST (installed 1/1969, closed-removed 3/1992); one (1) 10,000-gallon gas UST (installed 6/1992, in service); one (1) 5,000-gallon diesel UST (installed 6/1992, in service); one (1) 4,000-gallon gas UST (installed 1/1969, closed-removed 3/1992); one (1) 20,000-gallon gas UST (installed

6/1992, in service); and one (1) 1,000-gallon gas UST (installed 1/1969, closed-removed 3/1992) were listed on the state registry for this site.

NYSDEC Spill Report Database

Two (2) spill records were identified for this site:

- Simon Oil – 2nd and Main Street – Spill #9105555 – On August 22, 1991 xylene contamination was found during a site assessment. Wells were installed and monitored monthly. The results indicated a drop in concentrations with no free product or sheen observed. The spill was closed but did not meet NYSDEC cleanup standards.
- USA Gasoline Corporation: 502 Main Street – Spill #0175136 – This is a duplicate of Spill #0102748 described above.

Facility Index System (FINDS)

One (1) FINDS record was found for this site is listed as Riddhi, Inc. – 502 Main Street. This record identifies properties that have been found in one or more federal database.

Historic Auto Database

One (1) Historic Auto record was identified for this site. This site was identified as USA Petroleum Corp. in 2002 and as Sunoco from 2009 through 2012. This site was identified as a potential gas station, filling station, and/or service station.

Conclusion

The use of this property as gas station and the presence of underground storage tanks indicate the potential for encountering soil and/or groundwater contamination from petroleum products in the subsurface across portions of this site.

3.1.11 Site K – Vacant Lot – 503 Main St.

This property is located on the southeast corner Main Street and 2nd Street. Refer to Photo #20 in **Attachment C**.

Site Inspection

This site is currently a vacant lot.

Sanborn Maps

This site is depicted on the 1950 Sanborn Map as a gas station and auto repair shop with six tanks. On the 1969 map, the site is depicted as a parking lot.

Aerial Photographs

A small building set back from the road is depicted on this site on the 1938 and 1963 aerial photographs. Due to the scale of the photographs it is not possible to determine the nature of the business. The site is depicted as a parking lot on the 1978, 1995, 2006, 2008, 2009, and 2011 photos.

Conclusion

The past use of the property as a gas station and auto repair shop indicates the potential for encountering soil and/or groundwater contamination from petroleum products, chemical or solvents in the subsurface in the vicinity of this property.

3.1.12 Site L – Aquarium of Niagara – 701 Whirlpool St.

This property is located at the northeast corner of Whirlpool Street and Walnut Avenue. This is the location of a proposed primary vehicular and pedestrian gateway to the aquarium and discovery center on the southern end and a proposed secondary gateway on the northern end. Refer to Photos #21 and #22 in **Attachment C**.

Site Inspection

This site is currently an aquarium and associated parking lot.

Sanborn Maps

The northern portion of this site is depicted as a brewery with an asphalt company depicted on the southern portion of this site on the 1897 Sanborn Map. An electric railroad is depicted along the western edge of this site (currently at the approximate location of Whirlpool Street) on the 1897 map. On the 1914 map, the northern portion of the site is still depicted as a brewery and the electric railroad is still present on the western edge of the site. The southern portion is now depicted as a wall paper manufacturer, machine shop and cooper shop (wood cask manufacturer). On the 1950 map, the northern portion of the site shows two gas stations with tanks, a large warehouse and an auto repair shop. The southern portion of the site continues to be depicted as a large wall paper manufacturer on the 1950 map. The site is depicted as an aquarium on the 1969 map. In addition, the electric railroad line has been replaced with Whirlpool Street.

Historic Maps

The Niagara Falls Brewing Company and two railroad spurs are depicted on the northern portion of this site on the 1893 atlas. On the 1908 atlas, the brewery and railroad spurs are still present on the northern portion of the site and the Niagara Pulp Board Company is now depicted on the southern portion of the site along one of the railroad spurs.

Aerial Photographs

On the 1938 aerial photograph, a large factory building is depicted at the southern end of the site, along Walnut Avenue. In addition, there are several large buildings along Whirlpool Street at the northern end of the site. Due to the scale of the photographs it is not possible to determine the nature of the businesses. On the 1963 photo, the site is depicted as a vacant lot. The round aquarium building and associated parking lot are depicted on the site on the 1978, 1985, 1995, 2006, 2008, 2009, and 2011 photos.

City Directories

The following businesses were identified on this site in the city directories:

<u>Address</u>	<u>Use</u>	<u>Years</u>
701 Whirlpool St.	Aquarium of Niagara	1987-2013

NYSDEC Spill Report Database

One (1) spill record was identified for this site:

- Roadway – 701 Whirlpool Street – Spill #1407847 – On October 30, 2014 an unknown material was dumped/spilled onto roadway overnight and flowed into storm sewer. The sewer was flushed and only a stain remained on the roadway. The spill was closed but did not meet NYSDEC cleanup standards.

Conclusion

The past use of the property for various manufacturing operations, petroleum retail and storage, auto repair, and railroad transportation indicates the potential for encountering soil and/or groundwater contamination from petroleum products, chemicals, and solvents in the subsurface across portions of this site.

3.1.13 Site M – Angelo A. DelSignore Civic Building – 775 3rd St.

This property is located on the southeast corner of 3rd Street and Cedar Avenue. This is adjacent to the location of a proposed secondary vehicular and pedestrian gateway and parking lot for the proposed project. Refer to Photo #23 in **Attachment C**.

Site Inspection

This site is currently a Niagara County government building.

Sanborn Maps

This site is depicted on the 1969 Sanborn Map as a Niagara County Government Building.

Aerial Photographs

A single house is depicted on this site on the 1938 aerial photograph. On the 1963, 1978, 1985, 1995, 2006, 2008, 2009, and 2011 photos the site is depicted as one large building and associated parking lot.

NYSDEC Petroleum Bulk Storage Database

One (1) PBS record for this site is listed as Civic Building – 775 3rd Street. One (1) 6,000-gallon #2 fuel oil UST (installed 12/1956, closed-in-place 6/2003) was listed on the state registry for this site.

Leaking Storage Tanks Database

One (1) LTank record was identified for this site:

- Niagara County Civic Building: 775 Third Street – Spill #0207874 – On October 29, 2002 a tank failed its test. Borings were installed around the tank to investigate for contamination. Minor contamination was observed and the tank was closed-in-place. The spill was closed but did not meet NYSDEC standards.

Conclusion

The past presence of an underground storage tank with a leaking tank record on this site indicates the potential for encountering soil and/or groundwater contamination from petroleum products in the subsurface if contamination has migrated in the direction of Whirlpool Street and the secondary gateway.

3.1.14 Site N – Vacant Building – 318 Spruce St.

This property is located on the north side of Spruce Street, near Whirlpool Street. Refer to Photo #24 in **Attachment C**.

Site Inspection

This site is currently a vacant building.

Sanborn Maps

This site is depicted on the 1950 Sanborn Map as a vacant factory building. On the 1969 map, the site is depicted as the Moore Business Forms, a printer and manufacturer of business forms.

Aerial Photographs

A large building is depicted on this site on the 1938, 1963, 1978, 1995, 2006, 2008, 2009, and 2011 aerial photographs. Due to the scale of the photographs it is not possible to determine the nature of the businesses.

Conclusion

While no record of contamination was found on this property, the past use of the property as a printer and manufacturing company indicates the potential for undocumented environmental contamination of this site.

3.1.15 Site O – Vacant Lot – 624-626 Ashland Ave.

This property is located on the northeast corner of Whirlpool Street and Ashland Avenue. Refer to Photo #25 in **Attachment C**.

Site Inspection

This site is currently a vacant lot.

Sanborn Maps

This site is depicted on the 1950 Sanborn Map as an auto sales and service facility.

Conclusion

The past use of this property as an auto sales and service shop along indicates potential for encountering soil and/or groundwater contamination from petroleum products, chemicals, and solvents in the subsurface in this vicinity.

3.1.16 Site P – Parking Lot – 808 Cleveland Ave.

This property is located on the north side of Cleveland Avenue, east of Whirlpool Street. Refer to Photo #26 in **Attachment C**.

Site Inspection

This site is currently a parking lot.

Sanborn Maps

This site is depicted on the 1897 and 1914 Sanborn Maps as two residential dwellings. On the 1950 map a filling station with two tanks is depicted at 804 Cleveland Avenue; a filling station with one tank is depicted at 808 Cleveland Avenue; and an auto repair shop is depicted behind the gas stations.

Conclusion

The past use of the property as a gas station and auto repair shop indicates the potential for encountering soil and/or groundwater contamination from petroleum products, chemicals, and solvents in the subsurface in this vicinity.

3.1.17 Site Q – Henry E. Wrobel Towers – 800 Niagara Ave.

This property is located on the southeast corner of Whirlpool Street and Ontario Avenue. Refer to Photos #27 and #28 in **Attachment C**.

Site Inspection

This site is currently an apartment building and associated parking lot.

Sanborn Maps

This site is depicted on the 1897 and 1914 Sanborn Maps as a coal and wood yard along Whirlpool Street with four NYC Railroad lines behind them. On the 1950 map, a filling station with five large gas storage tanks is depicted at the corner of Whirlpool Street and Ontario Avenue; a coal company with six concrete silos is depicted along Whirlpool Street; and four NYC Railroad lines are depicted on the eastern side of the site.

Historic Maps

There are several buildings depicted along Whirlpool Street, including a large building along the adjacent NYC Railroad lines on the 1893 and 1908 atlases.

Aerial Photographs

On the 1938 aerial photo there are several large buildings located along Whirlpool Street and Main Street with several railroad lines between the buildings. The site is a vacant lot on the 1963 photo. On the 1978, 1985, 1995, 2006, 2008, 2009, and 2011 aerial photos the current apartment building is present surrounded by lawn and parking lots.

Conclusion

Despite redevelopment, the past use of this property as a coal yard, gas station, and part of a railroad line indicates the potential for encountering soil and/or groundwater contamination from petroleum products, chemicals, solvents, and unreported spills in the subsurface in the vicinity of this site.

3.1.18 Site R – Vacant Lot – 2201 Whirlpool St.

This property is located on the northeast corner of Whirlpool Street and Ontario Avenue. Refer to Photo #29 in **Attachment C**.

Site Inspection

This site is currently a vacant lot.

Sanborn Maps

This site is depicted on the 1950 and 1969 Sanborn Maps as a gas station with three tanks.

City Directories

The following businesses were identified on this site in the city directories:

<u>Address</u>	<u>Use</u>	<u>Years</u>
2201 Whirlpool St.	Gas Station	1964-1987
2201 Whirlpool St.	Auto Repair Shop	1964

Conclusion

The past use of the property as a gas station and auto repair shop indicates the potential for encountering soil and/or groundwater contamination from petroleum products, chemicals, and solvents in the subsurface in the vicinity of this site.

3.1.19 Site S – Former US Customs House – 2243-2245 Whirlpool St.

This property is located at the southeast corner of Whirlpool Street and Bath Avenue. Refer to Photo #30 in **Attachment C**.

Site Inspection

This site is currently being reconstructed to be the future Niagara Falls Intermodal Transportation Center which will accommodate trains, buses, taxis and shuttles, as well as an Underground Railroad Museum and interpretive center.

Sanborn Maps

This site is depicted on the 1897 Sanborn Map as the US Customs House with a residential dwelling at the corner of Whirlpool Street and Bath Avenue. On the 1914 map the building is depicted as a vacant building. The residential dwelling is still present at the corner of Whirlpool Street and Bath Avenue. On the 1950 map, the site is depicted as the US Customs House and a gas station with three tanks on the corner of Whirlpool Street and Bath Avenue. On the 1969 map, the US Customs House is still depicted and the gas station is now depicted as a storefront.

Historic Maps

This site is depicted on both the 1893 and 1908 atlases as the US Customs house. In addition, there is another structure depicted at the corner of Bath Avenue and Whirlpool Street on both of the maps.

Aerial Photographs

The US Customs House is present on this site on the 1939, 1963, 1978, 1985, 1995, 2006, 2008, 2009, and 2011 aerial photos. On the 1963, 1978, 1985, 1995, 2006, 2008, and 2009 photos there is a smaller building on the north side of the main building. Due to the scale of the photographs it is not possible to determine the nature of the business.

City Directories

The following businesses were identified on this site in the city directories:

<u>Address</u>	<u>Use</u>	<u>Years</u>
2243 Whirlpool St.	U.S. Bureau of Customs	1964-1982
2243 Whirlpool St.	Ammex Warehouse Co.	1987
2245 Whirlpool St.	Ammex Warehouse Co.	1964-1987
2245 Whirlpool St.	Rainbow Rapids Bridge	1972

RCRA No Longer Regulated

One (1) RCRA record for this site is listed as Niagara Falls Custom House – 2243 Whirlpool Street. This site was identified as a site that no longer generates, transports, treats, stores or disposes of hazardous waste. No violations were identified for this property.

NYSDEC Petroleum Bulk Storage Database

One (1) PBS record for this site is listed as U.S. Custom House – 2243-2245 Whirlpool Street. One (1) 1,500-gallon UST (install date unknown, closed-removed 3/2011) and one (1) 1,500-gallon #2 fuel oil AST (install date unknown, closed-removed 3/2011) were listed on the state registry for this site.

NYSDEC Spill Report Database

Two (2) spill records were identified for this site:

- In Front of Old Customs Building – Whirlpool Street & Bath Avenue – Spill #0651681 – On December 1, 2006 an underground storage tank and contamination was found. Three tanks and contaminated soils were removed. The spill was closed but did not meet NYSDEC cleanup standards.
- Odor while Excavating – Whirlpool Street & Bath Avenue – Spill #9306365 – On August 20, 1993 odorous material was encountered while digging around a footer. The water was disposed of; the spill was closed, and met NYSDEC cleanup standards.

Facility Index System (FINDS)

One (1) FINDS record was found for this site is listed as Niagara Falls Custom House – 2243 Whirlpool Street. This record identifies properties that have been found in one or more federal database.

HW Manifest

One (1) HW Manifest record for this site is listed as Niagara Falls Custom House – 2243 Whirlpool Street. This site has records of hazardous waste manifest shipments to or from the site.

Conclusion

Petroleum contaminated soils are known to exist adjacent to the Bath Avenue and Whirlpool Street intersection (southeast corner). Excavation within the right-of-way for roadway reconstruction and/or utility replacement may result in the need to dispose of petroleum contaminated soils where encountered.

3.1.20 Site T – Whirlpool Bridge – 2250 Whirlpool St.

This property is located on the west side of Whirlpool Street between Bath Avenue and Ontario Avenue. Refer to Photos #31 and #32 in **Attachment C**.

Site Inspection

This site consists of an international bridge to Canada, associated customs buildings and a no longer utilized railroad bridge.

Sanborn Maps

The Whirlpool Rapids Bridge and a railroad bridge are depicted on the 1897, 1914, 1950 and 1969 Sanborn Maps. On the 1897 map, there is a small customs house adjacent to the Whirlpool Bridge, storefronts and residential dwellings along Bridge Avenue and Whirlpool Street, and a flour mill located between the two bridges.

On the 1914 map, the customs house is still present adjacent to the bridge and storefronts and residential dwellings are still present along Bridge Avenue and Whirlpool Street. However, the flour mill is no longer depicted. On the 1950 and 1969 maps, there are now three buildings associated with the Rainbow Bridge (immigration, toll house and freight warehouse). There are no longer any residential dwellings or storefronts depicted along Whirlpool Street.

Historic Maps

The 1893 and 1908 atlases depict two bridges and several buildings around the bridges and on Whirlpool Street at this site. There is also a large building depicted at the bottom of the Niagara Escarpment with an incline railway connecting it to one of the buildings at the top of the escarpment on both of these maps.

Aerial Photographs

The Whirlpool Bridge, customs buildings and a railroad bridge are present on this site on the 1938, 1963, 1978, 1985, 1995, 2006, 2008, 2009, and 2011 aerial photos.

City Directories

The following businesses were identified on this site in the city directories:

<u>Address</u>	<u>Use</u>	<u>Years</u>
2240 Whirlpool St.	Whirlpool Maintenance Center	1977-1987
2250 Whirlpool St.	Niagara Falls Bridge Commission Garage	1992-1999
2250 Whirlpool St.	Ammex Duty Free	1977-2008

Voluntary Cleanup Program (VCP)

One (1) VCP record for this site is listed as Whirlpool Rapids Bridge – East of Whirlpool Street. This site consists of approximately one acre of land at the base

of the bridge supports. The bridge has been cleaned and painted at least five times since it was constructed in 1896. The cleaning involved sand blasting the bridge. As a result of the cleaning, lead contaminated waste accumulated at the base of the bridge. The Niagara Falls Bridge Commission entered into a Voluntary Cleanup Agreement to remove the spent abrasive and lead contamination. The Niagara Falls Bridge Commission also filed a deed restriction/ environmental easement to restrict further development below the bridge.

Institutional & Engineering Controls (IC/EC)

One (1) Institutional Controls record for this site is listed as Whirlpool Rapids Bridge – East of Whirlpool Street. The following institutional controls were identified for this site: Environmental Easement, Land Use Restriction, and Groundwater Use Restriction. For more information on the site see the VCP record above.

NYSDEC Spill Report Database

One (1) spill record was identified for this site:

- Whirlpool Bridge – Spill #8802908 – On June 14, 1988 a truck crossing the bridge left a trail of diesel. The spill was cleaned up, closed and met NYSDEC cleanup standards.

NYSDEC Registry of Inactive Hazardous Waste Disposal Sites (SHWS)

One (1) SHWS record for this site is listed as Whirlpool Site – Along Niagara River, North of Whirlpool Bridge. The City of Niagara Falls utilized this site for the disposal of snow, leaves and tree clippings. There is no report of refuse or industrial waste being disposed of at this site.

Conclusion

Historical maintenance operations at this site indicate the slight potential for encountering soil and/or groundwater contamination from chemical or solvents in the subsurface; however, no direct evidence of contamination is known to exist or be associated with this site.

3.1.21 Site U – Whirlpool Regional Maintenance Center – 2630 Whirlpool St.

This property is located on the west side of Whirlpool Street at Bath Avenue. Refer to Photos #33 and #34 in **Attachment C**.

Site Inspection

This site is currently a maintenance facility for the New York State Parks – Niagara Region. The site consists of four large and three smaller garage bays, equipment and material storage buildings, and three aboveground storage tanks.

Sanborn Maps

This site is depicted on the 1897 Sanborn Map as a paint works and cattle food company (716-718 Bath Street); a suspender manufacturer (2312 Whirlpool Street) and the Whirlpool Rapids Elevator Co. (2428-2430 Whirlpool Street). On the 1914 map, the site consists mainly of vacant lots. However, there are a few manufacturing facilities including a large shoe repair company (718 Bath Avenue) and a leather tire company with a 100-gallon tank and storehouse for oils (2430 Whirlpool Street) depicted on the site on the 1914 map. On the 1950 map, the site is mainly vacant between Bath Avenue and Bellevue Avenue. There is a State Parks building located north of Bellevue Avenue (2630 Whirlpool Street). The 1969 map depicts one large building and a smaller equipment storage building on this site. It is similar to its current configuration.

Historic Maps

The 1908 map depicts a number of buildings on this site including a suspender manufacturer, a gas generator company, and a spice company.

Aerial Photographs

This site is mainly vacant between Bath Avenue and Bellevue Avenue on the 1938 aerial photograph. There is a large building and residential houses along Whirlpool Street, north of Bellevue Avenue. On the 1963, 1978, 1985, 1995, 2006, 2008, 2009, and 2011 photos, the site is similar to its current configuration with one large building and several smaller buildings.

City Directories

The following businesses were identified on this site in the city directories:

<u>Address</u>	<u>Use</u>	<u>Years</u>
2630 Whirlpool St.	NYS Parks Recreation & Historic Preservation	2008-2013

RCRA Generator

One (1) RCRA GEN record for this site is listed as NYS ORPHS Niagara Region – 2630 Whirlpool Street. This site was identified as a small quantity hazardous waste generator. No violations were identified for this property.

RCRA No Longer Regulated

One (1) RCRA record for this site is listed NYS OPRHP Niagara Region – 315 Whirlpool Street. This site was identified as a site that no longer generates, transports, treats, stores or disposes of hazardous waste. Violations were identified for this property.

Leaking Storage Tanks Database

Four (4) LTank records were identified for this site:

- NYS Whirlpool Maintenance: Whirlpool & Bath Streets – Spill #9307164 – On September 13, 1993 a gasoline tank failed its tank test. A leak was found in the line. The line was replaced and re-tested. The spill was closed and met NYSDEC standards.
- NYS Whirlpool Maintenance: Whirlpool & Bath Streets – Spill #9301935 – On May 10, 1993 a diesel tank failed its tank test. The pipeline was excavated and retested. The spill was closed and met NYSDEC standards.
- NYS Parks: Whirlpool & Bath Streets – Spill #9410625 – On November 1, 1994 a discrepancy was found during inventory check. The tank was tested and the line failed. The line was replaced and the tank was retested. No contamination was found. The spill was closed and met NYSDEC standards.
- NYS Parks/OGS: Whirlpool Street – Spill #9614183 – A tank failed its tank test. The tanks were emptied and removed. The spill was closed and met NYSDEC standards.

NYSDEC Petroleum Bulk Storage Database

One (1) PBS record for this site is listed as Whirlpool Maintenance – 2630 Whirlpool Street. Two (2) 4,000-gallon gas USTs (installed 8/1979, closed-removed 6/1997); one (1) 4,000-gallon diesel UST (installed 8/1979, closed-removed 6/1997); one (1) 4,000-gallon gas AST (installed 8/1997, in service); one (1) 2,000-gallon diesel AST (installed 8/1997, in service); one (1) 528-gallon waste oil AST (installed 8/2002, in service); and one (1) 125-gallon motor oil AST (installed 6/2000, in service) were listed on the state registry for this site.

NYSDEC Spill Report Database

Two (2) spill records were identified for this site:

- NYS Parks Dept. – 2630 Whirlpool Street – Spill #0104596 – On July 30, 2001 a valve failed during a tank fill spilling approximately 10 gallons of gasoline. The spill was cleaned up, closed and met NYSDEC cleanup standards.
- Whirlpool Maintenance Facility – 2630 Whirlpool Street – Spill #9975100 – On April 1, 1999 NYSDEC received a report of drums being stored on the property. Approximately 60 drums containing paint and waste oil were found on the site. Some of the drums were leaking. The drums and contaminated soil were removed. The spill was closed and met NYSDEC cleanup standards.

Facility Index System (FINDS)

Two (2) FINDS records were found for this site:

- Whirlpool Maintenance Center – Whirlpool & Bath Streets
- NYS OPRHP Niagara Region – 315 Whirlpool Street

These records identify properties that have been found in one or more federal database.

HW Manifest

One (1) HW Manifest record for this site is listed as NYS ORPHS Niagara Region – 2630 Whirlpool Street. This site has records of hazardous waste manifest shipments to or from the site.

Conclusion

The use of this property as maintenance garage with underground storage tanks indicate the potential for encountering soil and/or groundwater contamination from petroleum products, chemicals, and solvents in the subsurface in the vicinity of this site.

3.1.22 Site V – Former Unifrax Corp. – 2351 Whirlpool St.

This property is located on the southeast corner of Whirlpool Street and Bellevue Avenue. Refer to Photo #35 in **Attachment C**.

Site Inspection

This site is currently a vacant building, it was formerly an insulation manufacturer.

Sanborn Maps

This site is depicted on the 1897 Sanborn Map as residential dwellings and The Electric City Malting & Brewing Co. (2312-2328 Main Street). In addition, a NYC & HR railroad line and a spur are depicted going to the brewery. On the 1914 and 1950 maps, the site is depicted as mainly vacant lots. There is one residential dwelling along Bellevue Avenue and the Spirella Co. heating plant is located at the corner of Main Street and Bellevue Avenue. One large building, depicted as three storefronts is located on this site on the 1969 map.

Historic Maps

A large warehouse is depicted on the southeast corner of the site on the 1908 atlas.

Aerial Photographs

This site is mainly vacant on the 1938 aerial photograph except for two small buildings on the northeast corner. On the 1963, 1978, 1985, 1995, 2006, 2008, 2009, and 2011 photos the site contains one large building with an adjacent parking lot. Due to the scale of the photographs it is not possible to determine the nature of the businesses.

City Directories

The following businesses were identified on this site in the city directories:

<u>Address</u>	<u>Use</u>	<u>Years</u>
2351 Whirlpool St.	Unifrax	1999-2013
2351 Whirlpool St.	Standard Oil Co.	1987
2351 Whirlpool St.	Carborundum Co.	1982-1995

RCRA Generator

One (1) RCRA GEN record for this site is listed as Whirlpool Technical Center – 2351 Whirlpool Street. This site was identified as a small quantity hazardous waste generator.

NYSDEC Spill Report Database

One (1) spill record was identified for this site:

- Unifrax Corporation – 2351 Whirlpool Street – Spill #0506588 – On August 29, 2005 equipment failure caused hydraulic oil to leak onto roadway from this site to 1626 Main Street. The spill was cleaned up, closed and met NYSDEC cleanup standards.

Facility Index System (FINDS)

One (1) FINDS record was found for this site is listed as Whirlpool Technical Center – 2351 Whirlpool Street. This record identifies properties that have been found in one or more federal database.

HW Manifest

One (1) HW Manifest record for this site is listed as Unifrax Corp. – 2351 Whirlpool Street. This site has records of hazardous waste manifest shipments to or from the site.

Conclusion

The past use of this property as a manufacturing facility indicates the potential for encountering soil and/or groundwater contamination from petroleum products, chemicals, and solvents in the subsurface in the vicinity of this site.

3.1.23 Site W – Former Grand Manor Inc. – 2600 Main St.

This property is located on the northeast corner of Whirlpool Street and Bellevue Avenue. Refer to Photo #36 in **Attachment C**.

Site Inspection

This site is currently a vacant building, formerly utilized as a nursing home.

Sanborn Maps

This site is depicted on the 1914 and 1950 Sanborn Maps as the Spirella Co., a corsets manufacturer. On the 1969 map, the site is depicted as the Deveaux Nursing Home.

Aerial Photographs

This site contains a large building along Main Street and a vacant (parking) lot along Whirlpool Street on the 1939, 1963, 1978, 1985, 1995, 2006, 2008, 2009, and 2011 aerial photographs. Due to the scale of the photographs it is not possible to determine the nature of the businesses.

NYSDEC Spill Report Database

One (1) spill record was identified for this site:

- Mount St. Mary's Nursing – 2600 Main Street – Spill #9714535 – On March 1, 1998 petroleum contamination was found during a site assessment. A tank in the loading dock area was removed along with the associated contaminated soils. The spill was closed but did not meet NYSDEC cleanup standards.

Conclusion

The past historical use of this property as a manufacturing facility with a spill record indicates the potential for encountering soil and/or groundwater contamination in the subsurface in the vicinity of this site.

3.1.24 Site X – Radioactivity in the Niagara Falls Region

Over the years and more recently as a result of several prominent roadway reconstruction projects, an awareness of the presence of radioactive slag buried within various road beds in the Niagara Falls Region has come out. The slag is thought to be residue from industrial processes prevalent in the area decades ago. The slag is known to have slightly elevated concentrations of naturally occurring radioactive materials.

The most cited reference on the presence of radioactivity comes from a document prepared by Oak Ridge National Laboratory and titled, Results of Radiological Measurements Taken in the Niagara Falls, New York Area (NF002), November 1986 (see Attachment D). The report summarizes the results of a radiological survey of 100 elevated gamma radiation anomalies identified by a mobile gamma scanning survey conducted during 1984 and possibly related to the transportation of radioactive waste material to the Lake Ontario Ordinance Works site for storage. The work also included soil sampling.

The results identified 38 anomalies associated with the Formerly Utilized Sites Remedial Action Program (FUSRAP) program which were later remediated. However, 62 other anomalies were identified associated with asphalt driveways and parking lots which used a phosphate slag material (identified as cyclowollastonite). This material was once involved in the electrochemical production of elemental phosphorous using uranium-bearing raw materials. Subsequently the rocky waste material was used for bedding under asphalt surfaces and in general gravel applications.

From this report the closest identified anomaly locations to the Robert Moses Parkway/Whirlpool Street corridor appear to be those identified along Portage Road south of Pine Avenue, Lewiston Road to the north of College Avenue, and near the Route 104/Main Street intersection. **None of the recorded anomalies were detected along or in the vicinity of Robert Moses Parkway or Whirlpool Street corridors.**

If radioactivity is detected during construction, the slag must be separated from the rest of the roadbed materials. Due to the unintended concentration of naturally occurring radioactive materials in the slag it is subject to DEC radiation regulations. Therefore, even though it may be removed from the ground for purposes unrelated to its radioactive content, once exhumed it is required to be disposed of in a facility permitted to accept naturally occurring radioactive materials. New York State solid waste regulations prohibit the disposal of radioactive materials in NYS solid waste landfills.

At this time, none of these radioactive materials are expected to be encountered within the roadway reconstruction limits associated with this project. A NYSDEC FAQ summary sheet on the handling and disposal of the radioactive wastes detected during the reconstruction of Route 104/Lewiston Road is included in Appendix D for reference.

3.2 Properties Considered to be Potential Environmental Concerns Identified Outside the Project Limits

The following properties were located outside, but in proximity, of the project limits. Should the limits of the reconstruction project change to require construction along these addresses, the subsequent properties would be considered properties of environmental concern.

Main Street

- Niagara Falls Info. Center - 610 Main St
- LaSalle Laundry & Dry Cleaning - 631 Main St
- Fast Auto Glass - 635 Main St
- BG Citgo Mart - 700 Main St
- Browns Auto Service - 701 Main St
- City of Niagara Falls - 745 Main St
- Smithkline Beecham Clinical Lab - 746 Main St
- Sunoco Service Station - 805 Main St
- NYS Armory-Niagara Falls - 901 Main St
- Office Building - 920 Main St
- Associated Textile Rental - 1001 Main St
- Petroleum Sales & Service Inc - 1125 Main St
- Spencer Automotive - 1210 Main St
- Capital Cleaners - 1227 Main St
- Joe Cheff's Automotive Service - 1229 Main St
- Health Association of Niagara - 1302 Main
- Cosmo's One Hour Cleaners - 1410 Main St
- Earl Brydges's Public Library - 1425 Main St
- Family & Children's Service - 1522 Main St
- Maytag Laundromat - 1606 Main St
- New Municipal Building - 1901 Main St
- City of Niagara Falls - 1925 Main St
- Bills Automotive - 2601 Main St
- Steve's Automotive - 2665 Main St

Niagara Street

- Abandoned Tank DOT ROW - Niagara St/5th St
- Parking Lot - 219 Niagara St
- Niagara Falls Gazette - 310 Niagara St
- NYSDOT Project - 313-319 Niagara St
- NYSDOT Project/Dry Clean - 502 Niagara St
- Niagara Street Market - 710 Niagara St

Niagara Avenue

- BP 855 Niagara Ave Inc - 855 Niagara Ave
- The Catholic Worker - 931 Niagara Ave

Cleveland Avenue

- White Star Cleaners - 915 Cleveland Ave

Highland Avenue

- Power City Warehouse - 3001 Highland Ave
- UCAR Carbon Co Inc - 3625 Highland Ave

4th Street

- Seneca Niagara Casino - 310 4th St
- NF International Transit Center - 343 4th St
- Lackey Plaza Ice Rink - 4th St & Niagara St

3rd Street

- Ensol Inc - 452 3rd St
- The Buzz - 512 3rd St
- Carborundum Center Bldg. - 345 3rd St
- Vault - 227 3rd / Duggan Rd

Cedar Avenue

- 20 Iroquois Avenue - 430 Cedar Ave
- Unknown Residence - 402 Cedar Ave

Elmwood Avenue

- Maintenance Building - 1170 Elmwood Ave
- Residence - 441 Elmwood Ave

Pine Avenue

- Atlantic Station - 926 Pine Ave
- Parking Lot - 616 Pine Ave

Portage Road

- Oakwood Cemetery - 763 Portage Rd
- Contamination in Excavation - 1228 Portage Rd

Miscellaneous Sites

- Reid Petroleum - 274 Walnut St
- Niagara Falls Visitor's Center - 360 Rainbow Blvd.
- City of Niagara Falls - Rainbow - 302 1st St
- K & C Auto Body Center Inc - 542 6th St
- Arocac Inc. - 628-638 9th St
- Former Gas Station - 2014 11th St
- Occidental Chemical - 47th St at Buffalo Ave
- Waste Technology Svcs, Inc. - 640 Park Pl
- Abandoned Tank - 101 Old Falls St
- NYS Parks - Goat Island Niagara Reservation
- Mid Island Auto Auction - 3160 County Rd 16
- Niagara Photo Lab Industries - 726 Division St
- AFRES South Bldg 752
- Reabolds Sunoco & Variety - 1577 Lockport St
- Eastern Auto Complex Inc - 630 Orchard Pkwy

4.0 CONCLUSIONS AND RECOMMENDATIONS

Twenty-four properties (A through X) were identified in this Preliminary Screening Report prepared for the Hazardous Waste/Contaminated Materials (HW/CM) Assessment that may pose an environmental risk and have a chance to affect the Niagara River Gorge – Robert Moses Parkway North Segment Corridor Project in the City of Niagara Falls. These sites should be considered for further investigation (Detailed Site Investigation – “DSI”) if the project will require excavation or utility replacement at depths greater than 2 to 3 feet adjacent or across these parcels.

Each potentially contaminated site is listed with the recommendation for further investigatory work or environmental monitoring in **Table 4-1** should the excavations associated with the reconstruction efforts warrant. Detailed findings for all the sites are described in **Section 3.1**.

Due to the past history of portions of the project study area (primarily south of Cedar Avenue and in the vicinity of Whirlpool Bridge) urban/industrial fill is likely present in certain areas. Historic research has confirmed that a significant amount of fill was placed to fill in the hydraulic canal in the vicinity of Sites A, G, H, and L. This fill was placed at a time when environmental laws were not in place; therefore, there is a potential to encounter historic contaminated fill from unknown sources at these sites. If construction or ROW acquisition is anticipated in or near the former canal, we recommend that soil boring inspections (and laboratory analysis for general industrial compounds, if warranted) be conducted, to determine whether contaminated soil or groundwater is present.

Fifteen of the twenty-four properties (B, C, E, F, I, J, K, L, M, P, Q, R, S, U, and W) contain or have contained petroleum storage tanks. If deeper excavations are anticipated in the area of these sites, we recommend that a soil gas survey and soil boring inspection (and laboratory analysis for petroleum compounds, if warranted) be conducted in the area of each involved site to determine whether petroleum contaminated soil (or groundwater) is present within the existing or proposed ROW, or that a contingency be placed within the budget to address possible soil remediation costs during construction.

There is also a potential that some of these fifteen sites may have abandoned and unmarked USTs within or adjacent to the existing ROW because of known or suspected former use as petroleum storage sites and their proximity to the roadway. Two (2) sites (K and L) apparently have or had USTs within the ROW based on the review of historical Sanborn Maps. The tanks locations are shown on maps dated 1950 and therefore may no longer be present.

Confirmation that the tanks are no longer present would require that a geophysical survey be conducted in the proposed and existing ROW in these locations to

determine whether these USTs and ancillary piping are still present. Locating the USTs would prepare for their proper removal prior to construction; however, their removal if present can also be addressed during construction through a contingency in the budget.

Seventeen of the twenty-four sites (A, B, C, D, E, G, H, I, K, L, N, O, P, R, U, V, and W) are or have been auto repair shops, printers or associated with historical manufacturing operations (*Please note: Some of these sites are in addition to or overlap with the land use of the fifteen sites identified above as potentially petroleum contaminated.*) If deeper excavations are anticipated in the area of these seventeen industrial sites, we recommend that a soil gas survey and soil boring inspections (and laboratory analysis for general industrial compounds, if warranted) be conducted at each site or that a contingency be placed within the budget to address possible soil remediation costs during construction.

Six of the twenty-four properties (A, H, L, Q, T, and V) were formerly part of a railroad line. Contamination is often associated with railroad lines as a result of normal rail line operations. Such activities include: hauling and service; cleaning and maintenance; fueling; and loading and unloading of packaged goods. Contamination typically found along rail lines includes partially combusted fossil fuels consisting of polynuclear aromatic hydrocarbons; leachate from creosote-preserved railroad ties; pesticides used in maintenance of the corridor; strong acid or alkaline materials; spent cleaning and degreasing solvents; ignitable paint wastes; used oil; and lead contamination from older freight cars with plane bearings, as well as other heavy metals including chromium and arsenic.

At Sites D, G, M, N, O, T, V, and W contamination is less likely and no additional work is recommended at this time but the Engineer-In-Charge should be aware of this report and the possible need for environmental inspection services should evidence of contamination be identified in the field.

These recommendations are based on the construction work proposed as of May 2015. If design plans or construction activities change during the project, the conclusions and recommendations of this assessment may require alteration.

**Table 4-1
Summary of Recommendations**

Site	Property Name and Address	Environmental Concerns		Recommendation
		Known	Potential	
A	Niagara Parkway – Robert Moses Parkway (Project Corridor)	Former Manufacturing Facilities, Former Hydraulic Canal, Former Railroad Lines	Chemical/Solvent Contamination, Petroleum Contamination, Urban Fill	Fill Previously Placed on the Site. Environmental Inspection services during construction if soil contamination is identified.
B	Rainbow Bridge	Former Manufactured Gas Plant, Former Auto Repair Shop	Petroleum Contamination, Abandoned USTs	Environmental Inspection services during construction if soil contamination is identified.
C	Entrance Ramp to Robert Moses Pkwy – 440 Main St.	Former Gas Station, Former Manufacturing Facility, USTs	Petroleum Contamination, Abandoned USTs,	Environmental Inspection services during construction if soil contamination is identified.
D	Days Inn Niagara – 443 Main St.	Former Auto Repair Shop	Abandoned USTs, Petroleum Contamination	Environmental Inspection services during construction if soil contamination is identified.
E	Three Sisters Trading Post – 454 Main St.	Former Manufacturing Facilities, USTs	Chemical/Solvent Contamination, Petroleum Contamination, Abandoned USTs	Environmental Inspection services during construction if soil contamination is identified.
F	Star Food Mart – 465 Niagara St.	Gas Station, USTs	Petroleum Contamination, Abandoned USTs	Environmental Inspection services during construction if soil contamination is identified.
G	Howard Johnson Hotel – 472 Main St.	Former Manufacturing Facilities, Former Hydraulic Canal	Chemical/Solvent Contamination, Petroleum Contamination, Urban Fill	Fill Previously Placed on the Site. Environmental Inspection services during construction if soil contamination is identified.
H	Former DeFranco Park – 480 Main St.	Former Manufacturing Facilities, Former Hydraulic Canal, Former Railroad Lines	Chemical/Solvent Contamination, Petroleum Contamination, Urban Fill	Fill Previously Placed on the Site. Environmental Inspection services during construction if soil contamination is identified.

**Table 4-1
Summary of Recommendations**

Site	Property Name and Address	Environmental Concerns		Recommendation
		Known	Potential	
I	Rodeway Inn – 492 Main St.	Former Gas Station, Former Auto Repair Shop, USTs	Petroleum Contamination, Abandoned USTs	Environmental Inspection services during construction if soil contamination is identified.
J	Sunoco Gas Station – 502 Main St.	Gas Station, USTs	Petroleum Contamination, Abandoned USTs	Environmental Inspection services during construction if soil contamination is identified.
K	Vacant Lot – 503 Main St.	Former Gas Station, Former Auto Repair Shop, USTs	Petroleum Contamination, Abandoned USTs	Possible GPR survey. Environmental Inspection services during construction if soil contamination is identified.
L	Aquarium of Niagara – 701 Whirlpool St.	Former Manufacturing Facilities, Former Hydraulic Canal, Former Gas Station, USTs, Former Railroad Line	Chemical/Solvent Contamination, Petroleum Contamination, Abandoned USTs, Urban Fill	Possible GPR survey. Fill Previously Placed on the Site. Environmental Inspection services during construction if soil contamination is identified.
M	Angelo DelSignore Civic Bldg – 775 3rd St.	USTs	Petroleum Contamination, Abandoned USTs	Environmental Inspection services during construction if soil contamination is identified.
N	Vacant Building – 318 Spruce St.	Former Manufacturing Facilities	Chemical/Solvent Contamination	Environmental Inspection services during construction if soil contamination is identified.
O	Vacant Lot – 624-626 Ashland Ave.	Former Auto Sales and Service Facility	Petroleum Contamination, Abandoned USTs	Environmental Inspection services during construction if soil contamination is identified.
P	Parking Lot – 808 Cleveland Ave.	Former Gas Station, Former Auto Repair Shop, USTs	Petroleum Contamination, Abandoned USTs	Environmental Inspection services during construction if soil contamination is identified.

**Table 4-1
Summary of Recommendations**

Site	Property Name and Address	Environmental Concerns		Recommendation
		Known	Potential	
Q	Henry E. Wrobel Towers – 800 Niagara Ave.	Former Coal yard, Former Railroad lines, Former Gas Station, USTs	Chemical/Solvent Contamination, Petroleum Contamination, Abandoned USTs	Environmental Inspection services during construction if soil contamination is identified.
R	Vacant Lot – 2201 Whirlpool St.	Former Gas Station, Former Auto Repair Shop, USTs	Petroleum Contamination, Abandoned USTs	Environmental Inspection services during construction if soil contamination is identified.
S	Former US Customs House – 2243-2245 Whirlpool St.	Former Gas Station, USTs	Petroleum Contamination, Abandoned USTs	Environmental Inspection services during construction if soil contamination is identified.
T	Whirlpool Bridge – 2250 Whirlpool St.	Former Railroad Lines	Chemical/Solvent Contamination	Environmental Inspection services during construction if soil contamination is identified.
U	Whirlpool Regional Maintenance Center – 2630 Whirlpool St.	Former Garage, Former Manufacturing Facilities, USTs, ASTs	Chemical/Solvent Contamination, Petroleum Contamination, Abandoned USTs	Environmental Inspection services during construction if soil contamination is identified.
V	Unifrax Corp. – 2351 Whirlpool St.	Former Manufacturing Facilities, Former Railroad Line, Former Heating Plant	Chemical/Solvent Contamination, Petroleum Contamination	Environmental Inspection services during construction if soil contamination is identified.
W	Former Grand Manor Inc. – 2600 Main St.	Former Manufacturing Facilities, UST	Chemical/Solvent Contamination, Petroleum Contamination, Abandoned USTs	Environmental Inspection services during construction if soil contamination is identified.
X	Radioactivity in the Niagara Falls Region		Radioactive Slag	Environmental Inspection services during construction if slag is identified.

* "Soil Gas Survey" and "Soil Boring Inspections" are field screening methods to determine if collection of a soil sample is warranted at a site.

 = Tanks Present Near Right-of-Way Based on Historical Maps/Records.

 = Fill Previously Placed on this Site.

ATTACHMENTS:

- A Sources of Information
- B Environmental Reports
- C Site Photographs
- D *Oak Ridge Laboratory – Results of Radiological Measurements Taken in the Niagara Falls, New York Area (NF002) and other Background Information*

The above attachments can be found on the attached CD.

L.2 GPS Enabled Overland Gamma Radiation Survey

GPS Enabled Overland Gamma Radiation Survey

***In Support Of
Niagara Gorge Corridor Project***

Niagara Falls, New York

Performed for

Parsons Engineering

By

MJW Corporation

September 9, 2015

APPROVED BY: _____ DATE: _____

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1.0 Purpose/ Discussion

Planned reconstruction of the Robert Moses Parkway and associated reuse of open spaces will require extensive regrading and soil removal activities. The cost of these activities will be impacted by removal and disposal of slag subbase materials containing technically enhanced naturally occurring radioactive materials (TENORM) if present. To help mitigate or reduce cost uncertainties associated with areas containing potential TENORM subbase materials, an overland gamma radiation survey coupled with GPS instrumentation was performed along road transects throughout the proposed project area. The information obtained provides a preliminary indication of the location of below grade TENORM materials. The gamma survey was conducted with a cart and backpack mounted 2x2 NaI detector and Ludlum 2241-2 ratemeter coupled to a Tremble GPS unit. The instrumentation simultaneously collected gamma radiation and location data. Once collected, the data were downloaded on mapping software (GIS) and evaluated for spatial and concentration variability.

The gamma radiation survey covered nearly five miles (approx. 2500 ft) with radiation data recorded every 2 seconds along the lengths of selected traverse paths. Road and area transects were selected to provide data that are indicative of the larger project construction area (i.e., additional road width, median and adjacent road locations, etc.) and was based on historical site knowledge (i.e., when the roads or walks were constructed, materials used, adjacent areas, and recent findings during similar work, etc). After downloading and evaluation of the data, several elevated locations were identified that have a high probability of containing TENORM slag subbase materials along the transect length. The locations can be used to extrapolate the presence of similar subbase material across adjacent lanes or over a wider localized area or when a higher degree of confidence is required, follow up surveys can be performed in the identified locations to better delineate the spatial extent of the suspected TENORM materials.

2.0 Scope

A GPS enabled overland gamma radiation survey was performed along roadways in the vicinity of the Niagara Falls Aquarium (Area 2) and over a larger area encompassing the Robert Moses Parkway from Main Street to Finley Avenue (Area 1). Both survey areas are shown in Attachment 1 and transects were walked in a line along the roads that avoided traffic and other hazards while permitting access with the cart mounted survey unit to maximize the amount of area covered within the time and budgetary constraints of the project. When necessary, surveyors deviated from the roadways to try and maintain satellite signals blocked by building, trees or other structures. Satellite contact was required to log radiation levels with location data during the survey.

Area 1 survey transects were located along the right side of the streets encircling the Niagara Falls Aquarium including; Walnut, 2nd, 3rd, and Main Streets. The Area 2 survey origin was located at the intersection of 2nd and Main Streets. The survey of Area 1 began at the intersection of 3rd and Whirlpool Streets and progressed north down the right side of Whirlpool to the intersection of Finley Avenue and the Robert Moses Parkway. The survey resumed on the closed lanes of the Robert Moses Parkway west of Finlay Ave. and continued south to the terminus of

the expressway at Main Street at which point, the survey turned east on Main Street and ended at the intersection of Main and 2nd Streets. Several side roads, paved areas and satellite “dead” zones were also surveyed after completion of the main transects across both Areas. These areas included; paved areas in the vicinity of the Whirlpool Bridge, Bridge Authority facilities and the Customs house area, sidewalk areas adjacent to Whirlpool and 3rd Streets, unpaved median areas between and adjacent to the Robert Moses Parkway and green space adjacent to the location of current construction activities (Police Station facilities) in Area 1.

At the conclusion of field data collection activities, the survey data were downloaded from the Trimble data logger and evaluated for spatial and radiation trends, outliers and errors. The survey data were then be corrected and exported to geographical mapping software (i.e., ESRI ArcGIS, VSP, etc.) where it was evaluated for variations and trends across the survey areas and displayed on the survey area maps to show spatial gamma radiation variations.

A more detailed description of the overland gamma survey methodology, including instrument use and data assessment, is described in MJW Corporation instrument and survey procedures.

3.0 Project Objectives

The following data objectives were identified for this project:

- Collect geographical positioning and gamma radiation data from ground surfaces along transects following roadways in the proposed reconstruction corridor for the Robert Moses Parkway.
- Differentiate radiation levels statistically above area instrument background gamma radiation levels with an identified spatial accuracy of 1meter.
- Present data on an area map showing relative count rate variations through discrete point symbols and trends identified by color variations in point symbols indicative of gamma radiation readings.

4.0 GPS/Gamma Survey Field Activities Description

On September 8, 2015, the MJW Corporation field crew mobilized to the Area 2 survey location at the Niagara Falls Aquarium and began setup and evaluation of field instrumentation.

Mobilization activities included:

- Equipment preparation, mapping and review of investigation site, preparation of field documentation and log sheets, loading and transportation to work location.
- Field calibration of radiation and GPS instruments and mounting/carrying equipment
- Site staff safety meeting, traverse and map review and
- Instrument and site background evaluation

Following mobilization activities, the survey crew, comprised of two MJW Corporation staff, began traversing the approximately 25,000 ft perimeter of the investigation area described in section 2.0 above, measuring gamma radiation levels at approximately 15 cm from the ground surface.

Due to the relatively smooth terrain across the study area, a 3 wheeled instrument cart was used to hold the survey equipment in fixed position while the technician observed the instrument readings. An audible beeping sound, emitted by the GPS unit, verified adequate satellite contact

to maintain positioning resolution. When a dissimilar sound occurred, the operator was made aware that satellite contact was lost and forward survey progress was halted until the confirmatory beeping signal was reestablished. Although infrequent, in instances where satellite contact could not be reestablished due to tall buildings, trees or other obstructions, a second backpack mounted survey unit was used to evaluate the area. In these cases, the surveyor manually recorded gamma radiation readings and noted the positions on the site map. Once the total traverse was completed, the instruments were checked again with a field calibration source to verify that they were working properly during survey activities.

The survey began at the intersection of Whirlpool and 3rd Street and continued north toward Finlay Avenue where it turned west and then south to return on the closed roadway surface of the Robert Moses Parkway to the intersection of Main and 2nd Streets. Area 2 was evaluated in a second survey beginning at 3rd and Main Streets and encompassing the area along Whirlpool and 2nd Streets. Additional survey area was evaluated that included; traverses through the Niagara Falls Aquarium parking lot and along an adjacent dead end road to the west of the parking lot. This area was followed by surveys of the Whirlpool Bridge entrance and exit roadways, the maintenance area and the abandoned Parkway entrance ramp off Whirlpool Street. The Bridge area was surveyed without the use of GPS due to Parkway overpass interference. Gamma radiation readings were recorded in counts per minute (cpm x 1000).

5.0 Data Evaluation

Overall, in excess of 8048 gamma radiation measurements were taken along the investigation roadways, paved areas and adjacent green spaces. Geographical positioning and radiation data were downloaded and evaluated using statistical and geographical software (i.e., Tremble Pathfinder Office, ESRI ArcGIS and Visual Sample Plan) as well as evaluation in MS Excel. Results of the data evaluation included; determination of survey point location accuracy, statistical evaluation of radiation data, trend analysis and identification of possible outliers and erroneous data points. The tables below show the calculated and evaluated results:

5.1 Survey data Population Statistics:

No. Pnts	Min. Value	Max. Value	Range	Mean	Median	Standard deviation
7657	0.43	93	92.96	5.48	4.98	2.95

5.2 Geographical accuracy of point locations. (Accuracy is determined by triangulation of satellite signals – more satellites mean better accuracy):

Estimated accuracies for 8878 corrected positions are as follows:

Range	Percentage
0-15cm	58.3%
15-30 cm	11.9%
30-50cm	15.8%
0.5-1m	13.5%
1-2m	0.3%
2-5m	0.1%
>5m	0.1%

5.3 Data Outliers:

Based on trending evaluation, statistical calculations and relative percent difference of the highest

5 values, these points were eliminated from the data population. The values: 953, 93, 83, 73, 73 were removed because they occurred in areas without a localized upward trend in concentration. Upward trending or elevated readings would be indicative of TENORM materials in slag or sub base. In all five cases, the elevated readings were single lone points. Other suspected outliers are identified in the data set and on the study area map with purple markers. The outliers did not affect the overall trend evaluations.

5.4 Radiation Readings Relative to Area Background Gamma Radiations Levels:

Prior to conducting the Robert Moses Parkway Gamma Radiation Survey, the survey instruments were used to determine typical area background readings over paved surfaces. As a result, the following instrument background radiation readings were used to evaluate investigation levels:

Pre Survey		Date	Post Survey	
Unit 1 (cpm)	Unit 2 (cpm)		Unit 1 (cpm)	Unit 2 (cpm)
3657	3397	09/08/15	3925	3249
3583	3290		3864	3229
3601	3276		3867	3163
4392	3249			

Instrument background readings were taken in the middle of the S. end of Aquarium parking area, in the vicinity of coordinates: X; 1020955.39 Y; 1127416.36.

Background readings taken over grass and soil location showed slightly higher readings ranging from 4500 cpm to 7500 cpm. In addition, road curbs had readings from 6000 to 9000 cpm.

Once background levels were determined, survey point data were differentiated by color groupings to identify locations having readings significantly above the background range (≤ 5000 cpm).

As a result, survey data points shown in blue (background range) on the survey map are less likely to be locations with underlying radioactive TENORM sub base materials. As the colors trend from blue to darker blue/black, then yellow, red and purple, the likelihood of underlying TENORM materials increases. Locations shown in yellow, red and purple have radiation levels significantly above background and therefore have the highest likelihood of representing the location of radioactive sub base materials.

It should be noted however, that due to shielding by cover materials (i.e, rock, gravel, saturated soils, etc), thickness of the slag materials and depth below grade, TENORM materials may not be detected at the surface and location near or at background radiation levels may also have TENORM present at depth below grade.

Map Data Color Coding

Radiation Reading (x 1000) cpm	Color Code	Probability of TENORM mat'l
≤ 5	Light blue	low
$>5 < 10$	Dark blue	Low - mod
$\geq 10 < 12$	yellow	Mod -high
$\geq 12 < 20$	red	high
≥ 20	Purple	Very high
Outlier	green	Low/no trend

5.5 Manually Surveyed and Logged Radiation Data:

Due to obstructions and a lack of satellite signals, the area under the Robert Moses Parkway overpass and adjacent to the Whirlpool bridge entrance and exit were surveyed with area levels manually record as they were collected. As a result of this survey the following area survey readings were identified and are shown on map 3 in Attachment A:

Manually Logged Survey Data:

Location Description	Radiation Readings (x 1000) cpm	Probability of TENORM Sub base
Whirlpool bridge entrance pavement area	3.8 to 7.5	Low
Whirlpool bridge entrance grass and green spaces (n. side)	6.5 to 8.5	Low to moderate
Grass/green space in front Park Maintenance facility	6.5 to 9.0	Low to moderate
Park Maintenance facility paved area	3.5 to 8.0	Low to moderate
Whirlpool bridge exit pavement area near Whirlpool	12 to 25	High
Whirlpool bridge exit area parking drive pavement	5.0 to 14	High
Whirlpool bridge exit area grass adjacent to sidewalk and sidewalk	6.0 to 8.5 4.0 to 5.5	Low
Whirlpool bridge exit area older parking pavement, curbed area	9.0 to 55.0	Very High
Whirlpool Street at an South of Bridge Exit, Customs House sidewalk and grass area	4.5 to 9.0	Low to moderate

6.0 Conclusions

Based on the scoping data collected during this gamma radiation survey, areas of suspect radioactive slag (TENORM) sub base materials appear to be present in the Robert Moses Parkway Reconstruction study area. As identified in the survey design objectives, survey transects were not laid out to identify the full spatial extent of suspect locations but rather to identify locations where there is a likelihood of TENORM.

While locations with light blue markers are characteristic of background radiation levels, blue markers adjacent to black then yellow and red markers would be indicative of upward trending radiation levels marking the boundaries or extent of TENORM subbase. However, consistent dark blue to black markers identify locations that are above the background range but not definitively elevated with regards to the presence or absence of TENORM materials. These locations would require additional investigation to determine a correlation between the range of radiation levels and the presence of TENORM materials.

Radioactive slag and subbase materials containing TENORM can have a range of radiation intensity or concentration levels due to several factors including; blending with non-radioactive materials or the radioactive content of the source from which the materials came. In addition, the depth and thickness of the material will also affect surface radiation levels as will the type and density of materials overlying the TENORM subbase. Therefore, a higher degree of uncertainty exists when trying to determine if TENORM is present at radiation levels less than twice the background range (i.e., blue to black ranges). When surface radiation levels are well above background levels (i.e, yellow, red, purple ranges) there is a much greater confidence level in the determination.

As noted in Attachment A, there are three locations along the Robert Moses Parkway in Survey Area 1

that showed upward trending radiation readings indicative of TENORM:

- The Northern most survey line along the Parkway including the adjacent grass areas (approx. 435 linear ft). The spatial extent east and west was not determined.
- A small segment of Whirlpool Street near the northern terminus of the survey traverse on that street (approx. 40 linear ft.)
- The Whirlpool Bridge exit road and adjacent parking area/roadway (approx. 150 x 75 ft).

In Area 2, data along 2nd Street and a segment of Main Street showed upward trending and elevated readings:

- 2nd Street for most of its length between Walnut and Main Streets had elevated reading (approx. 650 ft). This area, adjacent to on-going Police Station Contraction Activities, was identified on three different traverses alongside (sidewalk area) and in 2nd street on both sides of the street indicating that the horizontal extent (E and W) was not fully identified and is still undetermined.
- A small segment of the north side of Main Street on the sidewalk area, showed an increasing trend with elevated readings (approx. 75 ft in length).

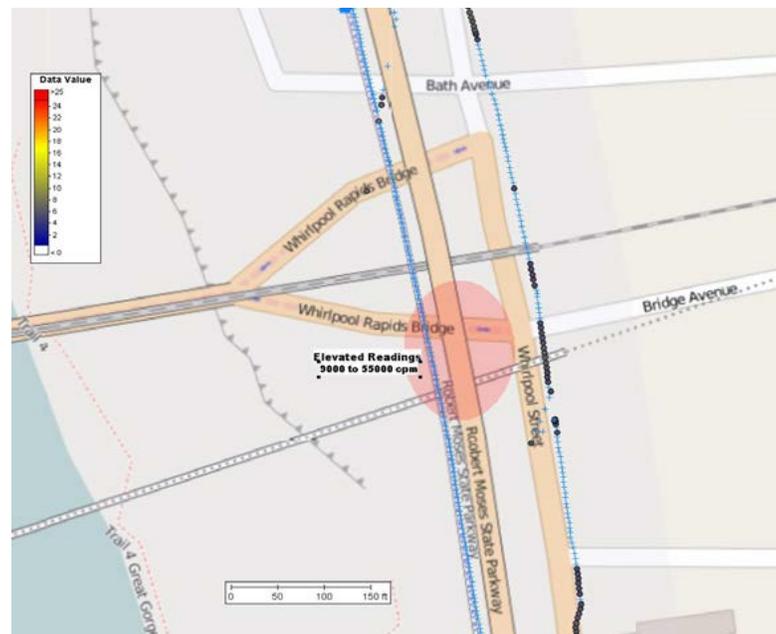
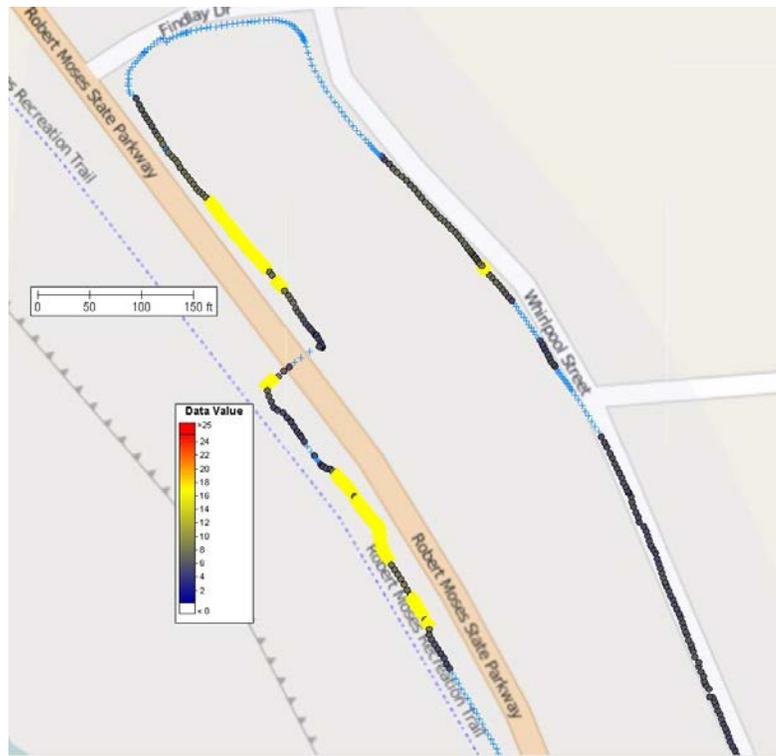
When necessary for reasons such as disposal, handling cost considerations or other factors, a precise estimation of area and/or volumes are required, additional walkover investigations and evaluation of the affected areas should be performed to better delineate the spatial extent and volume of material present.

ATTACHMENT 1

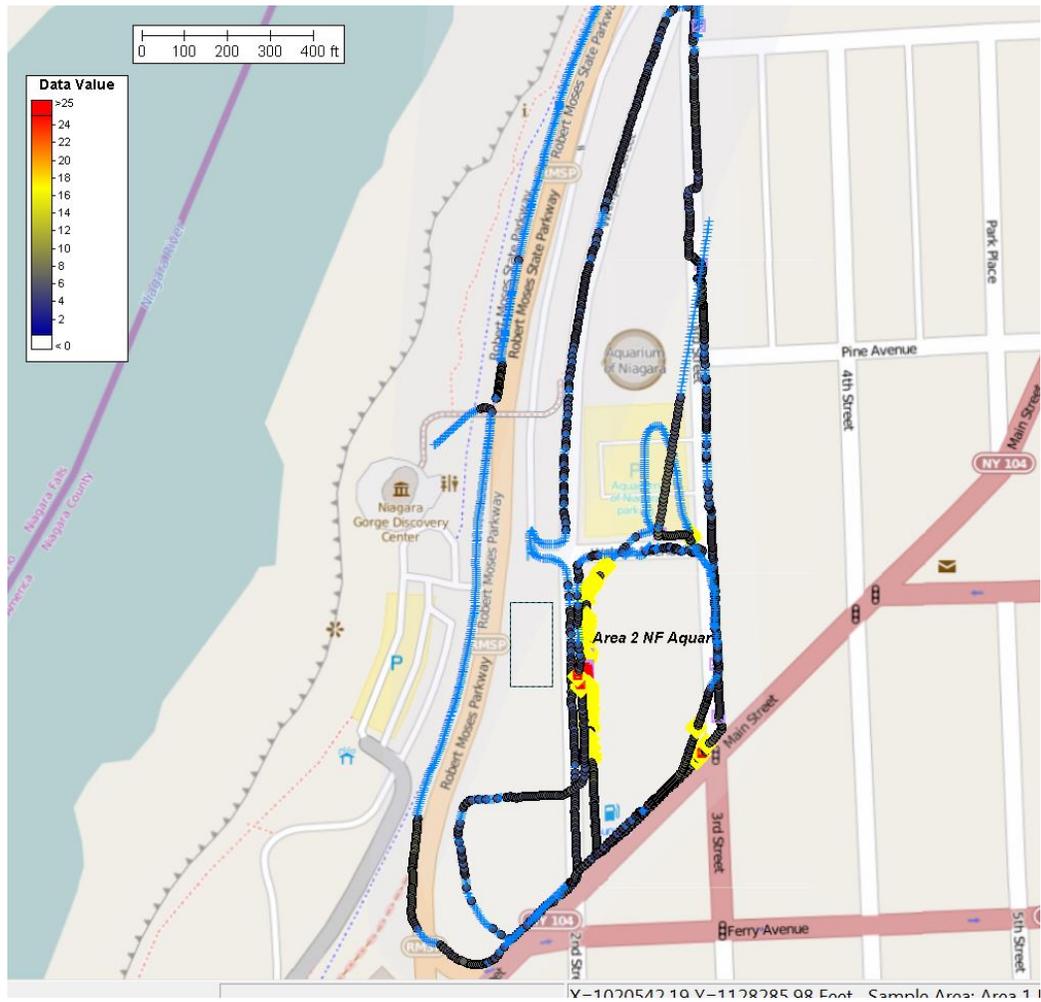
Area 1, Robert Moses Pkwy Survey Results



Area 1, Robert Moses Pkwy Survey Results, Expanded View of Elevated Locations



Area 2, Niagara Falls Aquarium Area, Robert Moses Pkwy Survey Results



Area 2, Niagara Falls Aquarium Area, Expanded View of Elevated Locations

